

# **Vol. I**

## **TRANSCRIPT OF RECORD.**

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**SUPREME COURT OF THE UNITED STATES.**

**OCTOBER TERM, 1922.**

**No. 278.**

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**LAYNE & BOWLER CORPORATION, PETITIONER,**

**vs.**

**WESTERN WELL WORKS, INC.; ROTARY DRILLING AND  
DEVELOPMENT COMPANY, STANLEY M. HALSTEAD,  
ET AL.**

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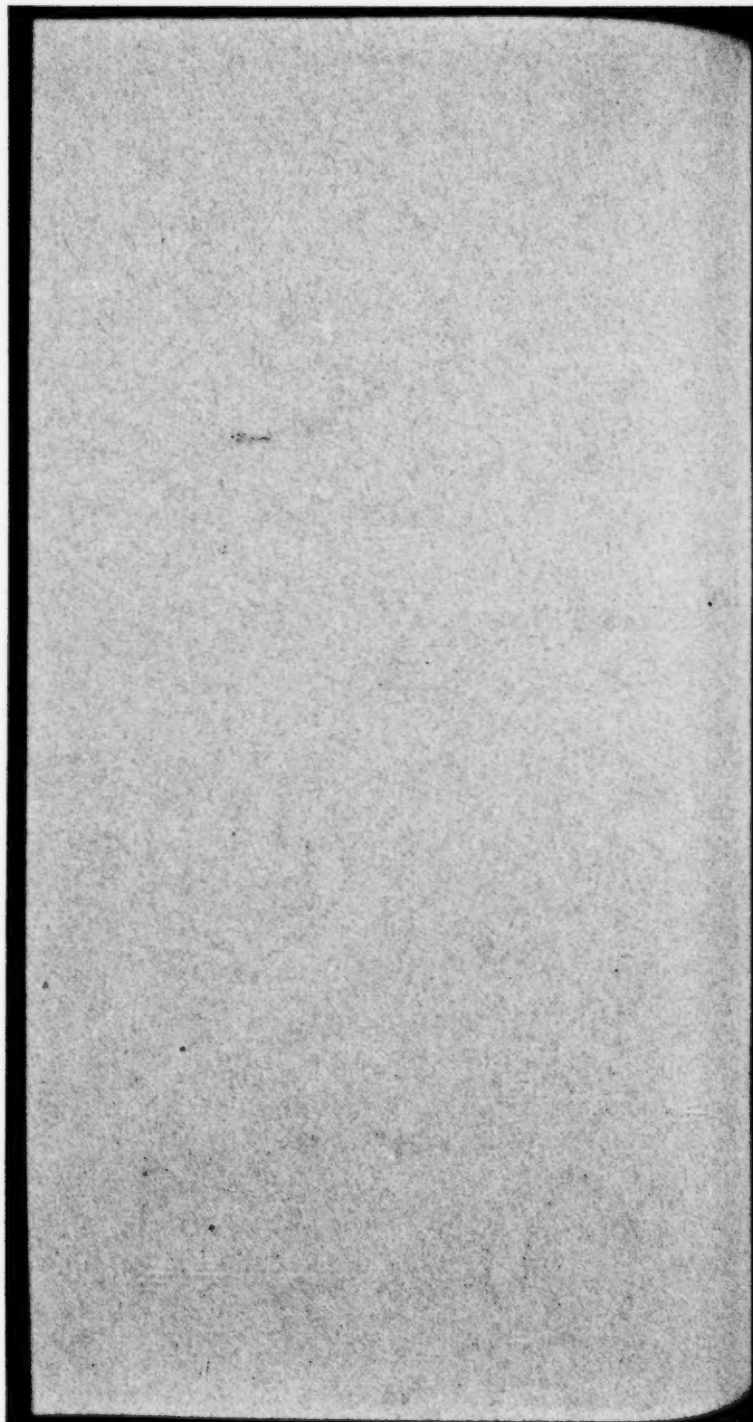
**ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT  
OF APPEALS FOR THE NINTH CIRCUIT.**

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**PETITION FOR CERTIORARI FILED FEBRUARY 24, 1923.**

**CERTIORARI AND RETURN APRIL 24, 1923.**

**(28,729)**





(28,729)

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**Names and Addresses of Attorneys of Record.**

CHARLES E. TOWNSEND, Esq., and WM. A. LOFTUS, Esq., Crocker Building, San Francisco,

Attorneys for Appellants.

WILLIAM K. WHITE, Esq., Crocker Building, San Francisco, and FREDERICK S. LYON, Esq., Merchants Trust Building, Los Angeles, Cal.,

Attorneys for Appellee.

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In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY.

FOR INFRINGEMENT OF LETTERS PATENT  
No. 821,653.

LAYNE & BOWLER CORPORATION,  
Plaintiff,

vs.

WESTERN WELL WORKS, INC. (a Corporation), ROTARY DRILLING & DEVELOPMENT COMPANY (a Corporation), STANLEY M. GALSTEAD, P. E. VAUGHAN, and ALLEN W. ROSS,

Defendants.

**Bill of Complaint.**

Comes now Layne & Bowler Corporation, plaintiff above named, and files this, its bill of complaint,

against Western Well Works, Inc. (a corporation), Rotary Drilling & Development Company (a corporation), Stanley M. Halstead, P. E. Vaughan, and Allen W. Ross, defendants above named, and alleges:

I.

That this is a suit in equity arising out of and under the patent laws of the United States, and the jurisdiction of the Court is based upon the said patent laws and the infringement of letters patent issued thereunder.

II.

That plaintiff, Layne & Bowler Corporation, is now, and for years last past has been, a corporation duly organized and existing under and by virtue of the laws of the State of California with its principal place of business at Los Angeles, California. [1\*]

III.

That defendant, Western Well Works, Inc. (a corporation), is now, and since on or about April 15, 1915, has been, a corporation duly organized and existing under and by virtue of the laws of the State of California, and has had, and now has, its principal place of business at the city of San Jose, in the county of Santa Clara, in the State of California; that defendant, Rotary Drilling & Development Company, is now, and since on or about March 20, 1919, has been, a corporation duly organized and existing under and by virtue of the laws of the State of California, and has had, and has, its principal place of business in the City of San Jose, County of Santa Clara, State of California; that defendants, Stanley

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\*Page-number appearing at foot of page of original certified Transcript of Record.

M. Halstead and P. E. Vaughan, are each residents and citizens of the city of San Jose, Santa Clara County, California; and that defendant, Allen W. Ross, is a resident and citizen of Burlingame, State of California.

IV.

That heretofore and prior to the 28th day of April, 1903, Mahlon E. Layne, was the true, original and first inventor of certain new and useful improvements in well mechanism not heretofore known or used in this country or patented or described in any printed publication in any country before his said invention thereof, and which had not, for more than two years prior to the date of his application for patent hereinafter set forth, been so patented or described or been in public use or on sale in this country, and which had not been patented on an application filed in any country foreign to the United States, by said Mahlon E. Layne, his legal representatives or assigns more than twelve months prior to the date of his application for patent hereinafter set forth, and which had not been abandoned to the public. [2]

V.

That said Mahlon E. Layne, being as aforesaid, the true, original and first inventor of said improvements and being a citizen of the United States, made application to the Commissioner of Patents of the United States in legal form for letters patent on said improvements, and that after due proceedings had, the Commissioner of Patents issued to said Mahlon E. Layne, in due form a patent for said invention, numbered 821,653, and dated May 29, 1906, the same being delivered to said Mahlon E. Layne under seal

of the patent office of the United States, signed by the Commissioner as by law directed, and that said patent granted and secured to said Mahlon E. Layne and his assigns for the term of seventeen years from and after said date of the patent the full and exclusive right to make, use and sell to others to be used the said invention and improvements set forth in the patent, a copy of which said letters patent is attached hereto and of which said Mahlon E. Layne stands ready to produce the original or a certified copy thereof, as your Honors may direct.

#### VI.

That by a regular chain of assignments in writing, duly executed by the parties thereto and duly delivered, said Mahlon E. Layne sold, assigned, transferred and set over unto plaintiff Layne & Bowler Corporation the full and exclusive right, title and interest in and to said letters patent No. 821,653 aforesaid and in and to the invention thereby described, set forth and claimed therein, for, to and in the State of California, and in and to all rights of action, claims or demands arising out of or accruing from past infringement of said letters patent within the State of California, and plaintiff now is the owner of the exclusive right, title and interest in and to said [3] invention and letters patent and all rights thereby granted and secured or accruing or arising out of the same, for, to and in the State of California.

#### VII.

That immediately after the production of said invention by Mahlon E. Layne the said invention went



into great and extended use and said Mahlon E. Layne and his various licensees and this plaintiff have sold large numbers of well mechanism embodying and containing the said invention patented in and by said letters patent and particularly as embraced in claims 9 and 20 thereof; that upon each and every of such well mechanism or pumps so embodying the said invention manufactured or sold or used by said Mahlon E. Layne or any of his licenses or by this plaintiff there has been plainly marked the word "Patented," together with the day and date of issuance of said letters patent, to wit, May 29, 1906.

#### VIII.

That said Mahlon E. Layne and his licensees, and this plaintiff since acquiring the right to said invention and letters patent for, to and in the State of California, have expended large sums of money and have been to great trouble with and about said invention for the purpose of carrying on the business of manufacturing and selling well mechanism containing and embodying said invention and making said invention profitable to them and each of them and to the public; that well mechanism have been made and sold in great numbers by them and each of them to the public, and that the public has generally acknowledged and acquiesced in the aforesaid rights of each of them and of plaintiff thereunder and thereto, and that but for the unlawful and wrongful infringement thereof hereinafter complained of plaintiff would realize and would have received large gains, [4] advantages and profits therefrom if the said infringement of defendants were prevented.

## IX.

That heretofore and on or about the first day of April, 1908, said Mahlon E. Layne filed in the United States Circuit Court for the Southern District of Texas his bill of complaint in equity against El Campo Machine Company and W. T. Gray as defendants alleging the invention of said invention by said Mahlon E. Layne and the grant and issuance of said letters patent to him therefor and the infringement thereof by said defendants; that defendants duly answered in said suit; that said suit was transferred to the United States Circuit Court for the Eastern District of Texas; that a final hearing was had in said suit upon proofs adduced upon behalf of the parties; that said United States Circuit Court for the Eastern District of Texas thereafter made, filed and entered in said suit its decree finding that said Mahlon E. Layne was the original, first and true inventor of said invention and particularly as set forth in claims 9, 13 and 20 of said letters patent, and that said letters patent were valid; that thereafter said defendants El Campo Machine Company and W. T. Gray appealed from said decree to the United States Circuit Court of Appeals for the Fifth Circuit; that said appeal was duly heard upon a full transcript of the record in said case; that said United States Circuit Court of Appeals for the Fifth Circuit thereafter, to wit, on or about April 4, 1912, rendered its opinion or decision upon said appeal in which it affirmed said decree of the Circuit Court of the United States for the Southern District of Texas and found that said letters patent were good and valid in law and found that the appellant had in-

fringed the 13th claim of said letters patent, all as will more fully and at large appear from the original [5] bill of complaint, answer of defendants, decrees of said courts and transcript of the record of proceedings in said suit, or duly certified copies thereof ready in Court to be produced as may be required.

X.

That during the year of 1911 said Mahlon E. Layne and Layne & Bowler Company, a Texas Corporation, filed their certain bill of complaint in the United States District Court for the Western District of Louisiana against Marvin B. Van Ness, said suit being known as No. 696 in Equity, for infringement of said letters patent No. 821,653; that defendant Van Ness duly answered therein; that said suit in equity was heard upon due proof taken on behalf of the parties; that said United States District Court for the Western District of Louisiana after a final and complete hearing in said suit made and entered its decree finding and adjudging that said Mahlon E. Layne was the original, first and sole inventor of said invention, and that said letters patent were valid, and particularly finding that claims 4, 9, 13 and 20 thereof were valid, and that defendant had infringed thereon; that defendant Marvin B. Van Ness took an appeal from said decree to the United States Circuit Court of Appeals for the Fifth Circuit; that said United States Circuit Court of Appeals for the Fifth Circuit heard and determined said appeal after full argument and rendered its opinion on or about April 16, 1914, finding that said letters patent were good and valid in law, particularly as to claims 9 and 20,

all as in and by said original bill of complaint, answer, transcript of record and proceedings in said courts, decrees and opinion of the Court, or duly certified copies thereof ready in court to be produced, will more fully and at large appear; that the opinion of the said Circuit Court of Appeals for the Fifth Circuit in said case [6] is reported in Vol. 213 of the Federal Reporter commencing at page 804.

### XI.

That on or about July 1, 1912, said Mahlon E. Layne and said Layne & Bowler Company, a Texas corporation, filed their bill of complaint against United Well Works, an Arkansas corporation, and J. R. Pennington and W. I. Porter alleging infringement of said letters patent No. 821,653; that defendants answered therein and after a final hearing thereof upon due proofs on behalf of the parties said United States District Court for the Western District of Arkansas made, filed and entered its decree finding said letters patent valid in law and particularly as to claims 9 and 20 thereof and adjudged the same infringed by defendants; that defendants took an appeal to the United States Circuit Court of Appeals for the Eighth Circuit from said decree; that said appeal was duly heard and considered by said United States Circuit Court of Appeals for the Eighth Circuit and said decree affirmed particularly as to claims 9 and 20 of said letters patent and as in and by said original bill of complaint, answer, proofs and record and said respective decrees or duly certified copies thereof will more fully and at large appear.

XII.

That thereafter said Mahlon E. Layne and said Layne & Bowler Company (a Texas corporation), filed their bill of complaint in equity in the United States District Court for the Western District of Louisiana against Fred I. Getty for infringement of said letters patent and particularly as to claims 9 and 20 thereof; that defendant duly answered therein and proofs, testimony and evidence upon behalf of the parties were [7] duly taken in said suit, and said suit was known as No. 925 in Equity; that said cause came on for final hearing on December 10, 1918, and was duly argued by counsel for the respective parties; that thereafter said District Court of the United States for the Western District of Louisiana decided said suit and rendered its opinion therein, ordering and directing a decree in favor of plaintiffs finding that said letters patent were valid and claims 9 and 20 infringed; that thereafter a decree was entered in said suit adjudging that said letters patent No. 821,653 were valid in respect to claims 9 and 20 thereof, that said Mahlon E. Layne was the first, true and original inventor of the invention and improvement described and claimed in claims 9 and 20 respectively thereof; that defendant Getty had infringed upon the exclusive rights of plaintiffs under claims 9 and 20 of said patent, and awarding a perpetual injunction and an accounting of profits and damages, all as in and by said original bill of complaint, answer, proofs, record and evidence, opinion of the Court and decree, or duly certified copies thereof ready in court to be produced will more fully and at large appear.

## XIII.

That at divers times on and between April 15, 1915 and the filing of this bill of complaint defendant Western Well Works, Inc., and defendants Stanley M. Halstead, P. E. Vaughan and Allen W. Ross have jointly, and without the license or consent of this plaintiff, unlawfully and in infringement of the exclusive rights of this plaintiff under and by virtue of said letters patent and within the State of California, to wit, at San Jose, in the County of Santa Clara, State of California, and elsewhere in the State of California, made, used and sold, and caused to be used used and caused to be sold, divers and sundry [8] well mechanism embodying and containing the said invention patented in and by said letters patent No. 821,653, and particularly as embraced in claims 9, 13 and 20 thereof; that each of the well mechanism so manufactured, sold or used or caused to be made, sold or used by defendants or either thereof as aforesaid has contained within it the same invention patented in and by said claims 9, 13 and 20 respectively of said letters patent, and at divers times since March 20, 1919, without the license or consent of plaintiff, and within the State of California, to wit, at San Jose, Santa Clara County, California and elsewhere, said defendant Rotary Drilling & Development Company (a corporation) conspiring with said defendant Western Well Works, Inc., Stanley M. Halstead, P. E. Vaughan and Allen W. Ross, has made and caused to be made, sold and caused to be sold, used and caused to be used, well drilling mechanism embodying and containing said invention patented in and by said letters patent and particularly as specified and



set forth in claims 9, 13 and 20 thereof, but for how long exactly or to what extent exactly each or any of said defendants have been so doing plaintiff is not informed and prays discovery thereof; that thereby plaintiff has suffered great damage and injury and said defendants and each of them have realized great profits from said wrongful and infringing acts and plaintiff prays that said defendants and each of them be ordered, adjudged and decreed to account for and to pay over to plaintiff all of such profits and advantages so realized by them or each of them from said wrongful and infringing acts and to pay to plaintiff all damages suffered by plaintiff by reason of such unlawful and infringing acts.

XIV.

That defendants Stanley M. Halstead and P. E. Vaughan are the owners of all, or substantially all, of the stock of said defendant Western Well Works, Inc., and are managing [9] and controlling said Western Well Works, Inc., and directing its business and particularly directing its infringing acts aforesaid; and that for a valuable consideration had and received by said defendants Stanley M. Halstead and P. E. Vaughan from this plaintiff and in consideration of certain rights and privileges granted to them said defendants Stanley M. Halstead and P. E. Vaughan did on or about October 1, 1914, enter into a certain contract or written agreement with plaintiff respecting the sale of well mechanism manufactured by plaintiff and containing the said patented invention and particularly the invention covered by and embraced within claims 9, 13 and 20 of said letters patent No. 821,653; that in and by said

written instrument and as a part thereof said defendants Stanley M. Halstead and P. E. Vaughan did covenant and agree that they, and each of them would and did acknowledge the validity of said letters patent No. 821,653 aforesaid, and the title of plaintiff therein and thereto in and throughout the State of California, Arizona and New Mexico and did acquiesce in and agree to acquiesce in said patent throughout the life of said patent, to wit, during the whole term thereof, and did covenant and agree that the term "enclosed line shaft" or the term "a closed casing surrounding the pump shaft from the pump to the top of the well" means and embraces any pump shaft for a deep well centrifugal pump, which is surrounded by a casing extending substantially from the pump to the top of the well and is provided with bearings for the shaft along its length, and which casing is sufficiently closed to allow feeding of a lubricating fluid down through said casing to the various bearing parts for the shaft therein; that, notwithstanding such acknowledgment of the validity of said patent and such acquiescence in the validity thereof, and such covenant as to the meaning and scope thereof, defendants Stanley M. Halstead and P. E. Vaughan conspired [10] together to manufacture in the State of California, sell and use pumping mechanism embodying the invention patented in and by said letters patent No. 821,653, and embraced within claims 9, 13 and 20 thereof and including the enclosed line shaft or a closed casing surrounding the pump shaft from the pump to the top of the well as so interpreted by said contract, all with the intent of appropriating to themselves the

business of this plaintiff in manufacturing, selling and using well mechanism containing said invention, all without the license or consent of plaintiff; and upon information and belief plaintiff alleges that said defendants Stanley M. Halstead and P. E. Vaughan caused the defendant Western Well Works, Inc., to be incorporated for the purpose of and to cause said Western Well Works, Inc., to engage in the manufacture and sale within the State of California of well mechanism embodying and containing the patented invention embraced and covered by said claims 9, 13 and 20 thereof; that said defendants Stanley M. Halstead and P. E. Vaughan have directed and still do direct the business of said Western Well Works, Inc., and control the same and cause the said Western Well Works, Inc., to manufacture and sell in the State of California well pumping mechanism embodying and containing said patented invention in defiance of the exclusive rights of plaintiff in and under said letters patent aforesaid; that in furtherance of said conspiracy and to enable defendants Stanley M. Halstead and P. E. Vaughan to more fully and completely carry on said infringement said defendants Stanley M. Halstead and P. E. Vaughan caused the said Rotary Drilling and Development Company to be organized and incorporated; that said defendants Stanley M. Halstead and P. E. Vaughan own and control said corporation defendant Rotary Drilling and Development Company and direct its business and affairs, and, without the license and consent and against the will of the plaintiff have [11] caused said Rotary Drilling and Development Company at divers times since its incorporation on or about March 20, 1919, to make, to sell

and to use within the State of California divers and sundry well mechanism embodying and containing the invention patented in and by said letters patent and particularly embraced and claimed in and by said claims 9, 13 and 20 thereof; that the defendant Allen W. Ross in furtherance of the said unlawful and infringing acts of the other defendants and of the conspiracy of said defendants Stanley M. Halstead and P. E. Vaughan, has acted and is acting as the general sales agent of the other defendants in the sale of said infringing well mechanism so manufactured and caused to be manufactured by them; that the said respective defendants are now continuing and threaten and intend to continue to manufacture, cause to be manufactured, sell and cause to be sold, and used and cause to be used the said patented invention, without the license or consent of plaintiff and within the State of California unless enjoined by this court, but to what extent or how many, exactly, of said infringing devices either or any of said defendants have made or used or sold or in what sum they have profited thereby is to the plaintiff unknown and plaintiff prays full discovery thereof from each of said defendants.

WHEREFORE plaintiff prays:

1. That the said defendants and each of them, their attorneys, officers, agents, servants, employees, associates, confederates and workmen and each and every thereof be enjoined and restrained during the pendency of this suit from manufacturing, using or selling or causing to be manufactured, used or sold, any well mechanism embodying or containing said patented invention and particularly any well

mechanism embraced within or covered by claims 9, 13 and 20 of said letters patent or any mechanism or parts thereof capable of or intended to be combined [12] in well mechanism in infringement of said letters patent, and that upon the final hearing of said cause said injunction be made permanent and perpetual.

2. That defendants and each of them be ordered, adjudged and decreed to pay over unto and that plaintiff recover from said defendants and each of them all the profits, gains or advantages realized by said defendants or either of them from said infringing acts, together with all damages sustained by plaintiff by reason of said infringing acts and that the Court increase the actual damages three times in view of the wilful character of such infringing and unlawful acts, and that the plaintiff have judgment against the defendants and each of them for the profits and damages so found and adjudged.

3. That plaintiff have judgment against defendants and each of them for its costs and disbursements herein and for such other further or different relief as to this Court may seem proper and be in accord with equity and good conscience.

LAYNE & BOWLER CORPORATION,

By MAHLON E. LAYNE,

President.

FREDERICK S. LYON,

LEONARD S. LYON,

WM. K. WHITE,

Solicitors for Plaintiff.

PAUL SYNNESTVEDT,

Of Counsel. [13]

State of California,  
County of Los Angeles.

Mahlon E. Layne, being first duly sworn, on oath says that he is the president of the Layne & Bowler Corporation, the plaintiff in the above-entitled suit; that he has read the foregoing bill of complaint and knows the contents thereof, and that the same is true of his own knowledge except as to such matters as are therein stated on information and belief and as to such matters he believes said bill of complaint to be true.

MAHLON E. LAYNE.

Subscribed and sworn to before me this 3d day of October, 1919.

[Seal] L. BELLE WEAVER,  
Notary Public in and for the State of California,  
County of Los Angeles.

[Endorsed]: Filed Oct. 6, 1919. Walter B. Mal-  
ing, Clerk. [14]

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In the Southern Division of the United States Dis-  
trict Court, for the Northern District of Cali-  
fornia, Second Division.

IN EQUITY—No. 485.

FOR INFRINGEMENT OF LETTERS PATENT  
No. 821,653.

LAYNE & BOWLER CORPORATION,  
Plaintiff,

vs.

WESTERN WELL WORKS, INC. (a Corpora-  
tion), ROTARY DRILLING & DEVELOP-



MENT COMPANY (a Corporation), STAN-  
LEY M. HALSTEAD, P. E. VAUGHAN,  
and ALLEN W. ROSS,

Defendants.

**Amended Answer.**

Come now the defendants above named, and for answer to plaintiff's bill of complaint, deny, admit and aver as follows:

**I.**

Answering paragraph I of the bill of complaint, defendants admit the allegations thereof.

**II.**

Defendants admit the allegations of paragraph II of the bill of complaint.

**III.**

Answering paragraph IV of the bill of complaint, defendants say that they have no information as to the truth of the allegations of said paragraph and therefore call upon plaintiff for full proof thereof.  
[15]

**V.**

Answering paragraph V of the bill of complaint, defendants admit that letters patent of the United States No. 821,653, dated May 29th, 1906, were granted to Mahlon E. Layne of Houston, Texas, for alleged improvements in well mechanism, but deny that said patent is valid, and deny that there was thereby granted and secured to said Mahlon E. Layne, his heirs, legal representatives and assigns, for the term of seventeen (17) years or for any term whatever, the exclusive or any right to make, use or vend the alleged invention throughout the

United States and territories thereof, or any territory or place whatever.

#### VI.

Defendants are not advised, save by the bill of complaint, as to the truth of the allegations in paragraph VI of said complaint, and therefore call upon plaintiff for full proof thereof.

#### VII.

Answering paragraph VII of the bill of complaint, defendants deny that the alleged invention of said letters patent went into great and extensive or any use, and deny that Mahlon E. Layne and his licensees have sold large numbers of well mechanisms embodying the alleged patented invention; further answering paragraph VII, defendants are not advised, save by the bill of complaint, as to whether or not Mahlon E. Layne or any of his licensees marked whatever well mechanisms were manufactured and sold by them with the word "patented," together with the day and year of said letters patent, and therefore call upon plaintiff for full proof thereof.

#### VIII.

Answering paragraph VIII of the bill of complaint, [16] defendants deny that Mahlon E. Layne and his licensees have expended large or any sums of money in carrying out their alleged business of manufacturing and selling well mechanism embodying said alleged invention, and deny that the public has acquiesced in the alleged exclusive right of plaintiff with respect thereto, and deny the other allegations of said paragraph and call for strict proof thereof.

IX.

Answering paragraphs IX, X, XI and XII of the bill of complaint, defendants deny that the validity of said letters patent has been upheld by the Circuit Courts of Appeal referred to in said paragraphs, except to a very limited extent; and further answering said paragraphs, defendants allege that such courts have so restricted the scope of said letters patent that they do not cover or include any well mechanism manufactured, used or sold by these defendants.

X.

Answering paragraph XIII of the bill of complaint, defendants deny that they have jointly or severally, or otherwise, or at all, made, or used, or sold, or caused to be made, or used or sold, any well mechanism embodying the alleged invention described in said letters patent, and particularly in claims 9, 13 and 20 thereof, or of any of them, but allege that each and all of the well mechanisms manufactured by defendant, Western Well Works, at all the times complained of herein were manufactured in accordance with, and under the protection of, United States letters patent issued to Stanley M. Halstead, No. 1,228,770, dated June 5th, 1917, and deny that any of said well mechanisms were or are an infringement of said letters patent issued to Mahlon E. Layne; further answering paragraph XIII, defendants deny that the defendant, [17] Rotary Drilling & Development Company, either conspiring with said defendants, Western Well Works, Inc., Stanley M. Halstead, P. E. Vaughan and Allen W. Ross. or otherwise, or at all, has made,

sold or used, or caused to be made, sold or used, well mechanism embodying the alleged invention of said letters patent to Mahlon E. Layne, and allege that said defendant, Rotary Drilling & Development Company, is not engaged in the manufacture of well mechanism or other machinery whatsoever; further answering paragraph XIII, defendants deny that plaintiff has suffered great or any damage or injury by reason of any acts on the part of these defendants, and deny that these defendants have realized great or any profits from *an* wrongful or infringing acts complained of in said bill of complaint.

### XI.

Answering paragraph XIV of said bill of complaint, defendants Stanley M. Halstead and P. E. Vaughan, admit that they are interested in and direct the business of the Western Well Works, Inc., but deny that they, or either of them, have directed any acts in infringement of the letters patent to Mahlon E. Layne; further answering paragraph XIV defendants, Stanley M. Halstead and P. E. Vaughan, admit that they entered into a certain contract or written agreement with plaintiff on or about October 1st, 1914, but deny that said contract is of binding force and effect on any of these defendants, and further allege that said contract and all the terms thereof was, by mutual consent, cancelled and set aside on the 24th day of March, 1915, prior to the incorporation of the defendant, Western Well Works, Inc., and prior to the date of the alleged acts complained of herein. That by said contract of cancellation of March 24th, 1915, and a subsequent instrument in writing between the defendant,

Western Well Works, Inc., and the Layne & Bowler Corporation, plaintiff herein, dated September 19, 1916, each party thereto and defendants, Stanley M. Halstead [18] and P. E. Vaughan mutually released each other from all obligations whatsoever under the aforesaid contract of October 1, 1914, all of which facts are well known to plaintiff herein; further answering paragraph XIV, defendants deny that said defendants, Stanley M. Halstead and P. E. Vaughan caused the defendant, Western Well Works, Inc., to be incorporated for the purpose of manufacturing devices in infringement of said letters patent to Mahlon E. Layne, and deny that said defendants, Stanley M. Halstead and P. E. Vaughan, caused the defendant, Rotary Drilling & Development Company, to be incorporated so that said defendant, Rotary Drilling & Development Company, is owned and controlled, and the business thereof directed, by said defendants, Stanley M. Halstead and P. E. Vaughan; further answering said paragraph XIV, defendants deny that defendant, Allen W. Ross, conspiring with the other defendants herein, or otherwise, or at all, has sold well mechanism infringing said letters patent to Mahlon E. Layne, and deny that said defendants are now manufacturing, using or selling, or causing to be manufactured, used or sold, or threaten to continue to make, use or sell, or cause to be made, used or sold, any well mechanism in infringement of said letters patent to Mahlon E. Layne.

XII.

Without waiving any of the matters and things above set forth, but repeating and insisting upon

the same, defendants further answering, and for a further and particular defense, say that said letters patent issued to Mahlon E. Layne, and particularly claims 9, 13 and 20 thereof, are invalid, and aver that prior to the alleged invention thereof by said Mahlon E. Layne, the same thing, or substantially the same thing, was shown and described in the following letters patent of the United States: [19]

No. 425,933, dated April 15, 1890, granted to C. W. Crammell, for Compound Pump;

No. 522,518, dated July 3, 1894, granted to S. N. Eisler, for Rotary Pump;

No. 682,939, dated Sept. 17, 1901, granted to E. M. Ivens, for Centrifugal Pump Mechanism for Deep Wells;

No. 705,844, dated July 29, 1902, granted to E. M. Ivens, Dec'd, for Pump Mechanism;

No. 735,691, dated Aug. 11, 1903, granted to J. W. Alvord, for High Speed Rotary Pump, filed Dec. 24, 1902;

No. 735,692, dated Aug. 11, 1903, granted to J. W. Alvord, for High Speed Rotary Pump, filed Mar. 30, 1903;

and the following British patents:

No. 12,886 of 1835 to Vojacek;

No. 2,774 of 1860 to Thompson;

No. 24,430 of 1894 to Mather;

and German patent #80,806; and other letters patent of the United States and foreign countries, the numbers and dates of which are at present unknown to these defendants, but which defendants pray leave to insert by amendment to this answer when discovered.

XIII.

Defendants further allege that said letters patent to Mahlon E. Layne, and particularly claims 9, 13 and 20 thereof, are invalid, and aver that prior to the alleged invention thereof, by said Mahlon E. Layne, the same or substantially the same thing was known and used by others in the United States, as follows, to wit:

Edgar N. J. Thompson of Los Angeles at San Francisco, California.

H. C. Robb of Los Angeles, at San Francisco, California and Milwaukee, Wisconsin. [20]

Wm. Cramp & Sons Ship & Engine Bldg. Co., of Philadelphia, Pa., at Philadelphia, Pa., and Niagara Falls, and elsewhere.

Frank H. Jackson, of Los Angeles, Cal., at Berkeley, Calif., and elsewhere.

American Well Works of Illinois, at Aurora, Ill., and Chicago, Ill.

J. W. Alvord, of Chicago, Illinois, at Chicago, Ill.

W. B. Gregory, of New Orleans, La., at New Orleans, La.

John Y. Snyder, of Shreveport, La., at New Orleans, La.

Harry A. Prindle, of East Orange, N. J., at Brooklyn, New York.

Swift & Company, of Chicago, Ill., a corporation of Illinois, at Chicago, Ill.

Pabst Brewery, of Milwaukee, Wisconsin;

Byron Jackson Iron Works, San Francisco, California, and Berkeley, Calif.

E. Barnes of Mt. Pleasant, Mich., at Mount Pleasant, Mich.

- S. W. Martin, of Springfield, Ohio, at Springfield, Ohio.
- C. W. Crannell, of Oberlin, Kansas, at Oberlin, Kansas.
- J. W. Downie, of Beaver Falls, Pa., at Beaver Falls, Pa.
- S. N. Eisler, of New Orleans, La., at New Orleans, La.
- C. Rodenbaugh, of Allegheny, Pa., at Allegheny, Pa.
- R. J. Northam, of Los Angeles, Cal., at Los Angeles, Cal.
- E. M. Ivens, of New Orleans, La., at New Orleans, La.
- G. A. Farwell, of Manchester, N. H., at Manchester, N. H.
- W. B. Sulver, of Carbondale, Pa., at Carbondale, Pa.
- A. N. Ellis, of San Bernardino, Cal., at San Bernardino, Cal.
- D. B. Mead, of Madison, Wisconsin, at Milwaukee, Wisconsin, and elsewhere.
- Wm. Clasman, of Milwaukee, Wis., at Milwaukee, Wisconsin, and elsewhere.
- W. L. Forward of San Francisco, Cal., at San Francisco, Cal., and elsewhere. [21]
- J. B. Keating, of San Francisco, Cal., at San Francisco, Cal., and elsewhere.
- Byron Jackson, of San Francisco, Cal., at San Francisco, Cal., and elsewhere.
- C. H. Thomas, of Berkeley, Cal., at San Francisco, Cal., and elsewhere.
- and was also known and used by others and at places



at this time unknown to these defendants, but which names and places defendants pray leave to insert by amendment when discovered.

XIV.

Defendants further allege that said letters patent to Mahlon E. Layne, and particularly claims 9, 13 and 20 thereof, are invalid, and aver that more than two years prior to the application of said Mahlon E. Layne for said letters patent, said supposed invention was in public use or on sale in this country as follows, to wit:

By American Well Works, of Illinois, at Aurora, Ill., and Chicago, Ill.

R. D. Wood & Company of Philadelphia, Pa., used at Philadelphia, Pa., at Brooklyn, New York, and elsewhere in the United States.

Harry A. Prindle of East Orange, New Jersey, used at Brooklyn, New York.

Prindle Engineering Company and Camden Iron Works, at Camden, New Jersey, used at Camden, New Jersey, and at Brooklyn, New York.

Mast, Foos & Company, of Springfield, Ohio, used at Springfield, Ohio, and in various other places in the United States unknown at present to this defendant.

Byron Jackson Iron Works, at San Francisco and Berkeley, California, and elsewhere.

Wm. Cramp & Sons Ship & Engine Bldg. Co. of Philadelphia, Pa., at Philadelphia, Pa., Niagara Falls and elsewhere.

J. W. Alvord, of Chicago, Ill., at Chicago, Ill., and elsewhere.

and by others and at other places at present unknown to these defendants, but which names and places defendants pray leave to [22] insert by amendment when discovered.

### XV.

Defendants further allege that said Mahlon E. Layne was not the original, first and sole, nor any inventor of the subject matter of said letters patent, and particularly claims 9, 13 and 20 thereof, but that the subject matter of said letters patent was invented by the following named persons prior to the alleged invention of said Mahlon E. Layne:

Frank H. Jackson, of Berkeley, California.

J. W. Alvord, of Chicago, Illinois.

S. N. Eisler, of New Orleans, La.

A. N. Ellis, of San Bernardino, Cal.

E. M. Ivens, of New Orleans, La.

C. W. Crannell, of Oberlin, Kansas.

Harry A. Prindle, of East Orange, New Jersey.

D. B. Mead, of Madison, Wisconsin.

Byron Jackson, of San Francisco, California.

### XVI.

For a further and separate defense, defendants allege that plaintiff is not entitled to equitable nor any relief in this court by reason of plaintiff's laches in that plaintiff for more than four years last past has had full knowledge of the acts of defendants and the business conducted by them and during all this time has permitted defendants to continue in said business and build up same without asserting its alleged rights; that the present suit is not brought in good faith but that plaintiff was forced to bring same in an attempt to bolster up its

defense in a suit now pending in the Superior Court of the state of California, in and for the County of Santa Clara, wherein the Western Well Works, Inc., the defendant herein, is plaintiff, and plaintiff herein is defendant; that the basis of said suit is the inequitable [23] oppressive and unlawful conduct of plaintiff herein in attempting to injure and destroy defendant, Western Well Works, Inc., lawful business in the manufacture and sale of well mechanism patented under said letters patent to Stanley M. Halstead by threatening the trade with unlawful and groundless suits for infringement which plaintiff has failed for more than four years to bring; and that said inequitable conduct on the part of plaintiff is a bar to its securing any equitable or other relief in this court.

WHEREFORE, and for the cause aforesaid, these defendants deny the equity of plaintiff's bill herein and all manner of wrongful and unlawful acts wherewith in the said bill of complaint these defendants are charged, and further denying the right of plaintiff to the relief or any part thereof sought against these defendants in said bill of complaint, all of which matters and things these defendants are ready and willing to aver, maintain and prove as this Honorable Court shall direct and humbly pray to be hence dismissed with their reasonable costs on this behalf.

CHAS. E. TOWNSEND,

CHAS. M. FRYER,

Attorneys for Defendants.

Dated December —, 1919.

Receipt of copy of the within amended answer admitted this 3d day of February, A. D. 1920, reserving all objections and objection — defendants and each of them, are estopped from attacking validity of patent sued on.

F. S. LYON and  
WM. K. WHITE,  
For Plaintiff.

[Endorsed]: Filed Feby. 9, 1920. Walter B. Maling, Clerk. [24]

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(Title of Court and Cause.)

**Injunction Pendente Lite.**

The above causing coming on to be heard before the Hon. William C. Van Fleet, on this 19th day of January, 1920, on the motion of the defendants for an injunction *pendente lite*, the plaintiff appearing by its counsel, Wm. K. White, Esq., and the defendants, by Wm. A. Loftus, Esq., and the Court being fully advised in the premises,—

**IT IS HEREBY ORDERED:** That pending the final decision of this case the plaintiff, its officers, directors, attorneys, clerks, agents and employees be, and they hereby are severally enjoined and restrained from in any way issuing or publishing statements like those contained in the advertisement attached to defendants' motion papers, or publishing statements in any form whatsoever, either written or oral, claiming that the defendants are insolvent or about to become insolvent, or are attempting to conceal their assets, and from sending

out circulars or letters or making any representations, either oral or otherwise, to defendants' agents, customers or representatives, or prospective customers or prospects of this defendant, threatening such person or persons with litigation or prosecution, or with the costs and expenses of litigation; and from advertising or publishing that suits are about to be brought against defendants' customers, or otherwise publishing statements, either written or oral, bearing on the merits of the pending litigation, beyond what is actually necessary to inform the public that a suit is pending and the character of such suit.

WM. C. VAN FLEET,  
Judge.

Dated January 19th, 1920.

[Endorsed]: Filed Jan. 19, 1920. W. B. Maling,  
Clerk. By J. A. Schaertzer, Deputy Clerk. [25]

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In the Southern Division of the United States District Court, for the Northern District of California, Second Division.

IN EQUITY—No. 485.

LAYNE & BOWLER CORPORATION (a Corporation),

Plaintiff,

vs.

WESTERN WELL WORKS, INC. (a Corporation), et al.,

Defendants.

**Depositions.**

Depositions *de bone esse* taken on behalf of de-

fendants in the above-entitled suit pursuant to the attached notice, before Arnold R. Petersen, a notary public in and for Dane County, Wisconsin, at the office of Burr W. Jones, Esq., in the Badger Block in the city of Madison, county of Dane, State of Wisconsin, taken at the said office in lieu of the place named in the notice, by consent and for convenience of counsel, commencing at the hour of ten A. M., on Monday, February 9th, 1920.

Present: FREDERICK S. LYON, Esq., on Behalf  
of the Plaintiff.

WILLIAM A. LOFTUS, Esq., on Behalf  
of Defendants.

The following testimony was taken and proceedings had, to wit:

Mr. LYON.—The taking of these depositions is proceeded with subject to the objection by plaintiff that defendants are estopped from contesting the validity of the patent in suit and are estopped by contract as to the scope of the claims of the patent in suit, and the depositions are taken to be read at the trial, at which time such objections will be urged.  
[26]

Mr. LOFTUS.—In view of the fact that the testimony about to be taken at this time on behalf of these defendants is to be the same testimony to be used by the defendants in the case of this same plaintiff against the American Well & Prospecting Company et al., being suit in equity No. E.—42 pending in the United States District Court for the Southern District of California, and inasmuch as counsel for the said American Well & Prospecting Company et al. is present and has already given

notice of his intention to examine these same witnesses upon the same matters touching the present case, and in order to prevent duplication of the examination of these witnesses in the two causes and for the purpose of saving time and expense of all parties concerned, I will state, on behalf of the Western Well Works, Inc., and the other defendants in this case, that I shall waive the examination of these witnesses in favor of Mr. Blakeslee, attorney for the defendants in the American Well & Prospecting Company et al. case, and will accept and adopt his examination and the testimony adduced thereby by him as the testimony and record in this case, reserving, of course, the right to interpolate interrogatories or objections as may appear necessary or proper.

Mr. LYON.—The statement of counsel for the defendants has been listened to and observed. The plaintiff has no objection to adopting the direct examination or redirect examination of the witnesses produced, but insists that if such procedure is adopted only one counsel shall interrogate the witness and that the complete direct examination shall be finished before the witness is cross-examined and likewise any redirect examination shall be completed before any recross. [27]

**Deposition of Daniel W. Mead, for Defendants.**

DANIEL W. MEAD, a witness produced and sworn on behalf of defendants, testified as follows in answers to questions put by Mr. Blakeslee:

Q. Please state your full name, age, residence and profession, Mr. Mead.

(Deposition of Daniel W. Mead.)

A. Daniel W. Mead; residence, Madison, Wisconsin; age, 58, in March. My profession is civil engineer; also Professor of Hydraulic and Sanitary Engineering at the University of Wisconsin.

Q. Kindly state what academic training and study or course of studies were pursued by you preparatory to your professional career and your career as professor.

A. Well, I spent a couple of years learning the machine trade before entering college. I entered Cornell University, New York, in 1881 and graduated in the civil engineering department in 1884. My first work was with the United States Geological Survey, Glacial Division, under Professor T. C. Chamberlain, and consisting of topographical work in the Chippewa Valley in the fall of 1884.

In 1885 I was appointed city engineer of Rockford, Illinois, which was my home town at that time, and was city engineer of Rockford for two or three years. I organized in Rockford what was known as the Rockford Construction Company, resigning as city engineer, and began contracting about 1888. I was engineer and general manager of the Rockford Construction Company for about eight years. That company did municipal public work, largely in the way of building foundations, sewers, water-works, pavement, road improvement and matters of that sort. They went out of business about 1886. About 1886 I [28] entered into a contract with the city of Rockford to develop a water supply for the city.

Q. 1886? A. 1896.



(Deposition of Daniel W. Mead.)

Q. You said they went out of business in 1886.

A. If I did I made a mistake. You will have to bear with me a little bit. I was home sick all last week and my head isn't just as clear as it ought to be this morning. Our Rockford Construction Company went out of business about 1896, and in 1896 I entered into a contract with the city of Rockford to develop a water supply. In that connection I went west to San Francisco to interview various manufacturers of centrifugal pumping machinery. Among those I met and discussed the question of centrifugal pumps with for the Rockford works was the Tracy Engineering Company, and the Byron Jackson Machine Works—I think that was the title—but in any event Mr. Byron Jackson of San Francisco was the man that I saw. I also saw several other parties in San Francisco who were interested in the manufacture of centrifugal pumps. One was named Krogh, I think. There were a number of others. I think there was a San Francisco Tool Works; I am not quite confident as to the latter. There was one other company whose name slips me.

From San Francisco I visited with the representative of the Byron Jackson Company a number of pumping plants along the Sacramento Valley. These were all drainage centrifugal plants, but my visit there was to see the character of work done by the Byron Jackson Machine Works. I also went down at that time to San Jose and visited some of the orchards around San Jose, where the Byron Jackson Machine Works had established irrigation

(Deposition of Daniel W. Mead.)

pumping plants, where they pumped from deep open [29] wells to the surface, eighty feet or more, by pumps situated at the base of these wells or shafts; said pumps being operated by engines located at the surface and driving the shafts by quarter turned belts at the surface, the shaft being connected with the pumps located below.

I then returned to Rockford by way of Los Angeles and the Southern Pacific, and afterwards entered into a contract with the Byron Jackson Machine Works for furnishing the three pumps, three pumping units, for Rockford, Illinois. The work at Rockford was carried on during 1897 and 1898 and according to the best of my recollection was finished up either late in 1898 or early in 1899.

In 1899 I moved to Chicago and established an office in the First National Bank Building of that city as Consulting Engineer. My business was largely in the way of preparing plans and specifications for municipal water supplies, and in this connection I built and rebuilt some 75 or a hundred different waterworks throughout Indiana, Illinois, Wisconsin, Iowa, Minnesota, Texas and possibly some minor work in other states.

At the request of the city of Ft. Worth, Texas, I made a report on securing an artesian supply from the Trinity sands and Pleuxey sands that underlie the city of Ft. Worth. This request was on account of the successful completion of the supply at Rockford, Illinois, previously mentioned. After the report was made the city induced me to enter into a contract to construct this system and furnish this

(Deposition of Daniel W. Mead.)

supply and my recollection is that that contract was carried out somewhere between 1900 and 1903 or '04—I presume the date is not particular. [30]

In this connection I also bought certain pumps of the Byron Jackson Machine Works, these pumps being built to locate in an open shaft, operated by engines and rope drives connecting the pumps with the engines at the surface. In that case the engines were down about 154 feet. I think I made a mistake there. I said the engines were down—the pumps were down about 154 feet. In the case at Rockford the pumps were down about 85 feet below the surface. In both cases the pumps were operated by rope drives from the fly-wheels of engines that overhung the shaft, the pumps being located below and the engines being at the surface.

Along about this same time I acted as engineer for A. E. Rutledge & Company and bought similar pumps for the city of Elgin, Illinois. In that case A. E. Rutledge simply installed the pumping plant; Byron Jackson furnished the pumps. As engineer for the Danville Water Company at Danville, Illinois, I designed and installed a pumping and filter system in that city. This was also in the early '90's. In that connection I purchased two low-lift centrifugal pumps from the Byron Jackson Machine Works for the Danville Water Company, which pump raised the water from the river into the settling basins.

As engineer of the company that had a franchise

(Deposition of Daniel W. Mead.)

at New Albany, Indiana, the name of the company I have forgotten, but as engineer of the company I bought two pumping units of the Byron Jackson Machine Works. My recollection is that in that case there were either three or four pumps in series in each unit. They were to be driven by a two-hundred horse-power motor to take water from wells and raise it about 200 feet into a reservoir on top of a hill. The company had some financial difficulty and the work was abandoned. I don't know what became of the pumps, although I do understand that they were [31] afterwards installed by another company.

In connection with the building of numerous small waterworks in the Upper Mississippi Valley I had occasion to develop a great many deep wells. The first one of that sort that I developed was in 1893 for the city of DeKalb, Illinois. I might say in this connection and as generally explanatory of our conditions through the Upper Mississippi Valley, that the whole Upper Mississippi Valley in southern Wisconsin, southeastern Minnesota, eastern Iowa and northern Illinois, are underlaid by great sandstone deposits, the lower of which are known as the Potsdam deposits. The Potsdam deposits consist of alternate layers of sandstone, together with shales and limestones interbedded; above this lies what is known as the lower magnesium limestone, a rather closegrained limestone, which in turn is covered by the St. Peter sandstone, another extensive sandstone deposit. These

(Deposition of Daniel W. Mead.)

sandstones outcrop in Wisconsin; the Potsdam deposit having an outcrop of something like 14,000 square miles, and the St. Peter an outcrop of nearly two thousand square miles. The rains in Wisconsin falling on these outcrops or soaking through the overlying soil, saturate these sandstones and follow them in their dip, which in a general way is away from the granite nucleus in northern Wisconsin. In other words, it dips south towards Illinois, southeast towards the southern part of Michigan, southwest towards Minnesota and Iowa. In these other states these sandstone deposits are reached by deep well drilling, and in almost every case one or both of these deposits can be encountered by the drill, and are found at varying distances from, say, in general, a hundred feet, the deepest well that I know of is about three thousand feet in [32] depth; where these sandstones are pierced by the drill the water rises toward the surface. In many cases it overflows to a small extent. But where large quantities have to be obtained, the water has to be pumped to a considerable distance below the surface in order to furnish sufficient head to develop the quantity of water needed for these small water supplies. Now, in order, then, to develop the small water supplies for numerous small cities and towns in the states I have mentioned, we have drilled wells into one or more of these layers of sandstone and in most cases have been obliged to attach pumps in various forms in order to secure the necessary quantity of water.

(Deposition of Daniel W. Mead.)

In 1893 at DeKalb, before mentioned, a well was drilled, as I now rememehr it, about 14 inches in diameter, down for about 200 feet, and smaller below, to a depth of perhaps a thousand feet or more. Then in this well was placed a reciprocating pump. My recollection is that the barrel of the pump was located down a hundred feet or more below the surface and raised the water from the sandstone, rising to this height where the pump cylinder was placed, raised from that into a reservoir, and then pumped from the reservoir to the city system.

Now, these reciprocating pumps were rather unsatisfactory. There were a variety of them in use. For example, in the place before mentioned of DeKalb they had previously drawn water from a similar well located up on the hill and have used what we call a double-acting steam-driven deep well pump. This consisted of a 36-inch steam cylinder located at the surface and the water cylinder located a hundred to a hundred and fifty feet below the surface. The steam consumption was exceedingly extravagant. If I remember it, it [33] cost about 13 cents a thousand gallons to pump the water with the old pump, and in the case of my installation it was in an endeavor to get more water at a less price. We installed what was termed a double-acting power head, built by the Downey Pump Company, which had two pistons in the cylinder located below the surface, one connected with a pipe, the other connecting with a rod operated

(Deposition of Daniel W. Mead.)

through the pipe, so that when one was going up the other was going down, and the pump was double-acting. We were able by using electrical drives on this pump to decrease the cost to about two and a half cents a thousand gallons. But in both cases we had a good deal of trouble on account of the shock of starting and stopping the column of water at the dead centers when these reciprocating pumps were turning over, and it got to be a very serious proposition where large quantities had to be taken from the wells.

Q. Let me interrupt right there, Professor. Please state what caused the actual lift in these pumps you have last spoken of. That is, what was the part that lifted the water operated by the concentric rods?

Mr. LYON.—We object on the ground that this is all irrelevant and immaterial and simply unnecessarily prolonging the examination of this witness, has no bearing upon the issues of this case.

Mr. BLAKESLEE.—The relevancy will appear.

A. The action of the pumps of course was to raise the water from this lower elevation, and in order to do so every time the piston came up in the cylinder it had to raise a column of water equal to the diameter of the piston and of a length from the point below the surface at which the piston operated to the height at which the water overflowed into the reservoir. That meant a column of water six inches or more in diameter [34] and a hundred feet or more in length which had to stop

(Deposition of Daniel W. Mead.)

and start every time the pump reciprocated or made a stroke; and on account of the excessive weight of the water, due to its size and length, this threw excessive shocks into the connecting mechanism, the rod and pipes that connected these pistons with the operating mechanism at the surface.

In order to overcome this, various types of pumps were invented, one of which was invented by E. E. Johnson, then of the Henion & Hubbell Company of Chicago. That pump consisted of the adaption of the Whitworth quick return, that is used on the shaper in the machine-shop, by an eccentric connection. The shaper makes a very slow advance and a very quick return, and Johnson adapted that to a double-acting pump, by means of which the cylinder which was unloaded would go down into the well rapidly and come up slowly. The consequence was that there were two of these pistons in the cylinder, that there was one coming up all of the time, and the shock on the rod was thus largely eliminated. The idea was apparently a very good one, but it was not mechanically well constructed. I had occasion to see, and in one case to test one of these pumps, and they were not satisfactory. In fact I think at the present time they are probably out of existence entirely, although if properly worked up I still believe that there is a field for a pump of that sort. Now, about that time—I am not exact in regard to dates—(Witness refers to memoranda).

Mr. LYON.—We object to the witness referring



(Deposition of Daniel W. Mead.)

to memoranda at the present time for the purpose of refreshing his recollection as to dates, or for any other purpose in answering this question.

Mr. BLAKESLEE.—Let it be shown that the witness refers to some memoranda in respect to this particular date. [35]

Mr. MEAD.—Well, I am obliged to refresh my memory in regard to the date of a paper that was prepared by Nicholas Simin, who was a civil engineer, an engineer of the water works of Moscow, Russia. He came to this country in 1901—

Mr. LYON.—The further objection is urged that the contents of any such paper are incompetent, and inadmissible in this case, not pleaded, and it is apparent that the witness is referring to some typewritten memoranda which has been produced before the witness took the stand in this case, and we further object to the detailing by the witness of all these matters which are not pleaded and are irrelevant, immaterial and incompetent and inadmissible under the pleadings.

Mr. BLAKESLEE.—The witness in these respects is obviously tracing the prior art, and in these respects the pleadings need not make issue.

Mr. LYON.—We call the Court's attention and the attention of counsel to the equity rule forbidding argument on the record and will ask, if the record of these depositions is to be lumbered with argument and statements by counsel for the defendant, that a suitable portion of the cost of the taking of these depositions and of these proceedings be charged against the defendant on account of the

(Deposition of Daniel W. Mead.)

violation of the equity rule in that regard. And this notice will be understood as continued through the taking of these depositions without being hereafter repeated.

Mr. BLAKESLEE.—We wish the equity rule mentioned to be observed and call the attention of the Court that counsel for plaintiff has several times interrupted the witness, and we have no desire to argue the matter here and only make such statements on the record as appear to be germane to the statements [36] of counsel. We believe counsel should make his objections to answers, and motions if he deems necessary after answers, and the witness should not be interrupted.

A. Mr. Simin read a paper on the water supply of Moscow, that may be seen in the Proceedings of the American Waterworks Association, 1901, pages 33 to 41. In this paper Mr. Simin described certain centrifugal pumps which had been installed by a manufacturing concern, Farcoe, I think it is, of Paris, France, installed by this company in the Moscow waterworks for raising water from deep wells to the surface; which consisted, as I recall it, of a single centrifugal pump, driven at a high rate of speed, which was sufficient to pump the water for some considerable distance from below the surface to the surface.

On account of the problem which was continually before my office at this time of securing quantities of water from wells of this nature, and the difficulty previously mentioned due to reciprocating machinery and its constant wear and breakage, the method

(Deposition of Daniel W. Mead.)

used in Moscow appealed to me as of considerable interest. In that connection I wrote to the Byron Jackson Machine Works, or to Mr. Byron Jackson, who had manufactured pumps for me before, and inquired as to whether he would undertake to manufacture a pump of generally the same character as—

Mr. LYON.—We object to the witness detailing the alleged contents of a letter, on the ground that the same is incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence.

A. (Continuing.) —as those they used in the Moscow waterworks. We had considerable correspondence about this matter, of a [37] general nature, and not applied to any particular place. My recollection is that our first correspondence began early in 1902, although it might have been late in 1901. I afterwards, in 1902, in the latter part of May and early in June, visited San Francisco, primarily in connection with certain pumps that the Byron Jackson Company were making for me for Ft. Worth, Texas, and at that time discussed with Mr. Jackson in considerable detail the need of deep well centrifugal pumps, and my own desire to utilize them in some of my work in the Upper Mississippi Valley. Mr. Jackson had previously to this sent me certain sketches and written various letters in regard to this matter.

Q. Now, at that point, allow me to interrupt, Mr. Witness. I think possibly a further question should be asked. What sort of a well was it cus-

(Deposition of Daniel W. Mead.)

tomary to use in connection with the early pumps you have spoken of for installing the pump barrel below the surface?

A. It depended somewhat on the local conditions, but in general we have in the Upper Mississippi Valley a certain drift sheet that varies from only a few feet in depth, sometimes to two or three hundred feet in depth. This drift sheet consists of broken fragmentary materials like clays, sands and gravels, etc., and overlies the indurated rocks. It is necessary to put what we term a drive-pipe of large dimension, larger dimensions than the well, down through this upper material and into the rock to prevent caving, and then the well below this point is usually drills of a smaller size and may or may not be lined to some distance below the rock with pipe. The drive-pipe, where the well is not otherwise lined, has to be well anchored into the rock and has to be large enough to contain the pump [38] cylinders or other type of pumping machinery which are to be placed in the wells, and the type of machinery to be placed in the wells may very materially modify the well that is to be drilled and its construction.

Q. And what diameters were customarily employed in these wells in which the machinery was installed down in the well—the diameters of the wells.

A. In the early days the quantities were small and the wells were mostly 8 and 10 and 12 inch. The well which I installed at DeKalb in 1893 was 14-inch diameter, was rather an unusually large

(Deposition of Daniel W. Mead.)

one, but was necessary in order to secure the largest quantity of water which we needed. And it was necessary, too, in the reciprocating pumps to have wells of rather excessive size in proportion to the quantity of water to be obtained from them, on account of the interrupted flow of water due to the reciprocation of the pumps. In other words, the pumps did not furnish a continuous flow, and one of the advantages to be gained by any rotating pump, such as a centrifugal pump or other pump of that sort, if used in the well, was the fact that the discharge was continuous and the size could somewhat be reduced on that account. But the main point or advantage in all pumps of that type is the fact that there is no reciprocation, no shocks, and that the play is in one direction and the strain is constant and no shocks or reciprocation, although there is a discharge of high rotary speeding which has to be considered.

Q. What is the latter type of pump you are speaking of now?

A. Well, all rotary pumps. I should include centrifugal pumps and pumps of the impeller type, and even pumps of the rotary piston type. [39]

Q. How long in your practice have pumps of that type been employed in wells?

A. The first one that was employed in the United States so far as I know was one which Jackson built for me in connection with the same correspondence, but for the Pabst Brewing Company in Milwaukee. That was, I think, installed in 1903.

Q. Do you remember how many stages that pump

(Deposition of Daniel W. Mead.)

had or what its general organization was?

A. Why, no, I don't remember exactly the number of stages. It was four or five, that is my recollection, and consisted of simply four or five pumps located right over each other, with a single shaft driven through them, and the lower one discharging into the second, the second into the third, the third into the fourth, and the fourth into the fifth. Whether there were four or six I don't know, but there were several, because Jackson told me that he estimated each one of those pumps would raise water about fifty feet, that he had to have a pump for each 50 foot raise, and that he usually provided something above that, and my recollection is that in that particular installation we were prepared to raise the water 200 feet, which would mean four pumps that would each raise 50 feet. But my recollection was there was one or two extra pumps in order to be sure to get the required head and raise the water for the full 200 feet.

Q. What is the practice in your knowledge to-day in wells, in using rotary pumps, as to one or more stages or units in superimposed relation?

A. Well, most all of the centrifugal pump manufacturers are manufacturing pumps of that general character to-day, consisting of several units, one discharging into the other, and the last one discharging into a pipe reaching to the surface. [40]

Q. What is the reason for using a number of these units or propellers, one over the other, instead of using one large or single propeller or unit?

A. It is in order to raise the water to a full

(Deposition of Daniel W. Mead.)

height from a well of small diameter.

Q. And what kind of a well, what is that well known as in its type?

A. They are usually termed in this part of the country bored wells. They are drilled from the surface by the use of certain types of churned tools, and, as I said before, using a casing down to the rock, and sometimes away down below the rock, where caving rock is found.

Q. Did they used to use wells of a larger diameter than they do now?

A. Well, no and yes, both. These drilled wells have increased in diameter of late years on account of the larger quantities of water that are needed, and they are larger to-day than they were at the time I am speaking of. On the other hand, in the earlier days they were obliged, wherever water had to be raised, to dig open wells. Those open wells were constructed very frequently at considerable expense. For instance, in the Rockford proposition that I put in in 1896 we had a shaft 15 feet in diameter and 85 feet deep. Then we went down with a six-foot shaft about twenty feet more, then tunneled out to various wells and connected piping with them and brought that piping into the central shaft and connected it up with the suction of one of these large pumps. This large shaft was needed, because the pumps were installed down in the shaft and they had to be accessible from the surface. The expense, of [41] course, of that kind of an installation was very high. The Rockford shaft and pumping installation together cost them about

(Deposition of Daniel W. Mead.)

\$60,000, giving a capacity at that time of about seven million gallons.

Q. For what unit of time?

A. Seven million gallons per day. At Waterloo, Iowa, where I afterwards installed some deep well centrifugal pumps, one engineer had advised a shaft and tunnel system. I was representing in that case the N. W. Harris company of Chicago, who owned the Waterloo works, and I calculated that the cost of installing the shaft and tunnel system at Waterloo, similar to that installed at Rockford and Ft. Worth, would be about \$150,000, and that the deep well centrifugal pump could be installed of the same capacity for about \$50,000.

Q. Do you know who furnished the pump apparatus for the Waterloo installation you have spoken of?

A. Yes. That was furnished by the Byron Jackson Machine works.

Q. And when was that installation put in?

A. About 1904, as I recall it.

Q. Now returning a moment to the previous line of inquiry. Please state briefly as you may wish what matters you are engaged upon to-day, in a general way.

A. My work at the present time is largely—well, entirely in general consulting practice. That is, I pass on a great many propositions that are designed and installed by other engineers, for various bond houses in St. Louis, Milwaukee, Chicago, Pittsburg, New York and Boston, where bonds are to be taken on engineering work. Then we design and build



(Deposition of Daniel W. Mead.)

plants, mostly in the way of waterworks and hydro-electric plants. I might say that in the last few years I have designed and [42] built one plant over at Prairie du Sac, about 28 miles from Madison, for the Wisconsin River Power Company, involving a cost of about three million dollars. Just previous to that I built another plant for the Southern Wisconsin Power Company at Kilbourn, involving about two million and a half dollars. I have built plants at High Falls. These are hydro-electric plants, all of them, with high tension transmission system. The plant at High Falls involved about a million and a quarter; transmitted power from High Falls on the Peshtigo River to Green Bay, a distance of about sixty-odd miles. I have installed for the Peninsular Power company, whose headquarters are here at Madison, a plant at Iron Mountain on the Menomonee River, costing as I recall it, about a million dollars, and I have just finished the second plant for the same company on the Brule River, involving about three-quarters of a million dollars. These two plants furnish energy at about 66,000 volts to the iron region around Menomonee, what is known as the Menomonee range, to Iron Mountain and Iron River, Michigan, and some of the adjacent Wisconsin territory. I have just within a year completed rebuilding the waterworks here at Madison at an expense of about \$400,000. I am now engaged in the designing and reconstruction of the Rockford, Illinois, waterworks which will cost from half to three quarters of a million. I might say that I am acting as consulting engineer on sev-

(Deposition of Daniel W. Mead.)

eral drainage propositions in Arkansas and southern Missouri. For example, I am consulting engineer of the Little River drainage district, involving a drainage of about 550,000 acres. I represented the bankers there in the first place and am now representing the district on some of their more difficult work. Also just passed on the Poinsett drainage district of Arkansas, a matter involving about four million dollars. I might say that I am also at present acting as one of the [43] board of appraisal of the waterworks at Clinton, Iowa, and have acted on appraisal boards in perhaps fifteen or twenty different waterworks. I have been consulting engineer of the Miami Conservancy district, headquarters at Dayton, Ohio, and was acting chief engineer at one time. That proposition involved an expenditure of about twenty-five million dollars. I will say that at one time, five years ago, I went to China for the Red Cross and the Chinese Government on the flood prevention works over in China. Of course I can give you a list that would cover several pages if you want it, but it seems to me this hasn't much to do with pumps. I don't care to say anything more than you gentlemen want; in fact, the less I say the better I am satisfied.

Q. That is sufficient on that head. The name of your firm is what, Professor?

A. Daniel W. Mead and Charles V. Seastone.

Q. And in what courses have you a chair as professor in the University of Wisconsin?

A. Hydraulic and sanitary engineering. I lecture more especially on hydraulic subjects; the sub-

(Deposition of Daniel W. Mead.)

ject of water supply and water power, drainage and irrigation, hydraulic machinery, on contracts and specifications.

Q. You have spoken of a certain letter or certain correspondence between yourself and Mr. Byron Jackson of the Byron Jackson Machine Works of San Francisco, as I remember, early in 1902. Have you any record of that letter?

A. I have copies of all my correspondence.

Q. Will you produce anything of that description, please, pertaining to that time, early in 1902?

A. I have here a copy of a letter that I wrote to Byron Jackson dated February 10th, 1902. [44]

(Witness produces a copy of such letter.)

Q. Where did you obtain that copy, please?

A. It's from my files.

Q. Where has it been since the copy was made?

A. It has been in my files.

Q. What did you do with the original of that letter?

A. That was sent to Byron Jackson, Esq., San Francisco, California.

Q. That is, it is a typewritten copy made at the same time? A. It's a carbon copy; yes.

Mr. BLAKESLEE.—We ask that this be copied into the record.

(Marked for identification Defendants' Exhibit "M-1.")

Mr. BLAKESLEE.—You can take copies of those letters, can't you?

Mr. LYON.—We will see about that before we get through.

(Deposition of Daniel W. Mead.)

WITNESS.—The only point is I don't want to break up my file.

Mr. BLAKESLEE.—I think counsel won't object to photostat copies.

Mr. LYON.—I can't answer that question until we have seen what they are. This one will be copied into the record with the same force and effect as if you offered the signed carbon copy which the witness has produced.

Said Defendants' Exhibit "M-1" was received in evidence and is as follows:

**Defendants' Exhibit "M-1."**

Feb. 10th, 1902.

Byron Jackson, Esq.,

San Francisco, Cal. [45]

Dear Sir:

Will you kindly advise me as to your ability to design a Series pump that can be placed in a 16" well, 150 ft. below the surface; same to be operated by an electrical motor to run at any speed you specify, preferably from 1200 to 1800 revolutions per minute. What quantity of water could you furnish by means of such a design?

I trust you will find time to answer this question at an early date, as if I can obtain a pump of this description which will raise from  $\frac{1}{2}$  to 1 million gallons from a depth of one to two hundred feet I believe I can find a place for a number of these pumps. I shall be greatly obliged for an early reply.

Yours very truly.

(Deposition of Daniel W. Mead.)

I expect to send you a drawing of the Fort Worth Shaft tomorrow.

Q. The original impression of this letter just produced was mailed by you, was it, to Mr. Jackson?

A. Yes.

Q. In the usual course of mails? A. Yes.

Q. Did you receive any letter subsequent to this or in reply thereto from Mr. Jackson? A. I did.

Q. Can you produce that?

A. I received a letter dated February 17th, 1902, from Mr. Jackson.

(Witness produces letter bearing date of February 17th, 1902.) [46]

Q. You received this in the usual course of mails, did you, Mr. Mead? A. Yes, I did.

Q. Do you know whose signature this is at the bottom? A. Byron Jackson's.

Q. You are acquainted with his signature?

A. Yes, sir. I have known him for years. I might say that I afterwards received a further reply to that same letter from Mr. Jackson.

It is stipulated that Exhibit "M-2" be received in evidence and copied into the record, as follows:

**Defendants' Exhibit "M-2."**

San Francisco, Cal., Feb. 17, 1902.

Mr. Daniel W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:

Replying to yours of the 10th, asking if we could design a series pump to be placed in a 16" well

150 ft. below the surface, same to be directly driven by an electric motor connected to the shaft to run at any speed between 1200 and 1800 R. P. M. It would not be a difficult matter to make such design that would fill the 6" pipe capacity from 500 to 800 gals. per min. We have already made a pump to go in a 10" well, capacity 300 to 400 gals., but we have not experimented but very little with this pump, so are not prepared to say as to the efficiency. There are some problems regarding the construction that we have not thoroughly thought of, but it can be designed to discharge directly into the center, of the shaft running through the pipe, thus to be coupled up and hung in the well by the pipe, [47] having no other frame work; but the difficulty in this problem is oiling the shafting and friction of couplings in water. It might be made with two discharge pipes and letting the bearing bars connect the two pipes, thus the two pipes become the frame, then all oiling could be done in the usual way and the diameter of the pump would be perfectly round, and just enough smaller than the well pipe to insure its free passage through the well pipe, and the diameter of the runner would be enough less than the diameter of the pump to permit the discharge back to the center—the same as any series pump. The question is how much money can we get for such pump? It can be made in either 3 or 4 series. Please let us know what the competition would be in this line of pump and if there is anything in it, we

(Deposition of Daniel W. Mead.)

are willing to undertake such a pump and guarantee it.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/PL.

(Note by the Reporter.—The interlineation “& friction of couplings in water” above noted is made in the original letter in ink. The word “of” stricken out in this copy is stricken out in lead pencil in the original letter.)

Q. What was the further reply you have just mentioned in this connection?

A. My recollection is that Mr. Jackson was away about that time. I had occasion to write him again on March 13th and then again on March 31st. Mr. Jackson—he had been away—wrote me about various matters that I then had up with him, including certain discussion concerning vertical engines and rope transmission, [48] and incidentally he discussed small pumps and wall casings, and that is partially a further reply to my first letter and partially a reply to a letter I wrote him March 13th. That letter only refers, just a part of it refers to this case at hand, and part of it comes for instance, to the New Albany plant that I mentioned that he was supplying me, and certain discussions of methods of connecting shaft and engines.

Q. Is there anything in these last letters that you wish to keep in the secrecy of your files?

A. No, there isn't anything secret about any of

(Deposition of Daniel W. Mead.)

my letters. All I want is that they should be returned to me.

Q. You spoke of other business matters in them.

A. It isn't anything that I wish to keep secret in any way. You are perfectly welcome to read the whole mass of it. Here is a letter of March 18th, which is written by Mr. Boyer, and I don't think has anything pertinent in it. I am perfectly willing to have you look at it. Then here is a letter of March 31st, when Mr. Jackson got bank and *and* wrote me concerning that matter.

(Witness produces carbon copy of his letter to Boyer, and letter of March 31st, 1902, referred to March 18th, 1902, referred to by him as from Mr. Boyer, and letter of March 31st, 1902, referred to by him as from Byron Jackson.)

Q. This letter of March 13th, 1902, is a carbon copy also of the letter you wrote Mr. Byron Jackson? A. Of a letter I wrote Byron Jackson.

Q. Of that date? A. That date; yes.

Q. And this letter of March 18th, 1902, signed "Byron Jackson [49] Machine Works, per Boyer," was received by you in the regular course of mail? A. It was.

Q. And do you know the signature of Boyer attached to that letter?

A. Yes, sir. I met Mr. Boyer in San Francisco.

Q. And this letter of March 31, 1902 was received by you in the regular course of mail? A. It was.

Q. And the pencil addition to it, signed "B. J."—do you know what "B. J." means in that connection?



(Deposition of Daniel W. Mead.)

A. Well, it was Byron Jackson, and was simply a note that he added to it before sending it after it had been typewritten. There are two notes of that sort.

Q. And you are acquainted with those initials of Mr. Jackson?     A. I am; yes.

It is stipulated that the letter of March 13, 1902, or unsigned carbon copy thereof, may be received in evidence and copied into the record as Defendants' Exhibit "M-3" as follows:

**Defendants' Exhibit "M-3."**

March 13th, 1902.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

I have recently referred to you Mr. Edward S. Cole of John A. Cole & Sons of this city, who is looking for centrifugal pumps, and whom you will doubtless hear from within a few days. [50]

In regard to the small pumps for use in well casings, concerning which you wrote me a short time ago, I would say that there is at present no competition whatever in that line. I know of no pumps put in the wells the way I suggest in this country, but I believe there is a field for them, and I should be very glad to attempt their installation, if you can advise me closely as to the cost of their manufacture. You spoke of having built one for a 10-inch casing. Have you tried it and with what success? I shall be very glad to receive a copy of the test you refer to, and also am looking for a copy of your

new catalogue which I understood was to be out before this.

Concerning the question of rope transmission, would say my idea of using the shaft instead of the rope is largely based on our unfortunate experience at Rockford. Mr. Jackson stated before leaving for the coast that if he had to install another plant of the sort he should certainly use vertical shafting, and I have also been of the general opinion that at a depth of 170 ft. below the surface the length of rope would be so long as to make it undesirable and that therefore the shaft would be preferable. Am rather surprised to hear that Mr. Jackson now thinks otherwise. I should be glad to know Mr. Jackson's reasons for this change in views. Do you not think that the vertical shafting will run entirely satisfactory? Would like to hear fully concerning this before I decide on the type of pumps for Forth Worth.

Awaiting your further advice, I am,

Yours very truly.

It is also stipulated that the letter of March 18th may be received in evidence and copied in the record as Defendants' Exhibit "M-4" as follows:  
[51]

**Defendants' Exhibit "M-4."**

San Francisco, Cal., March 18, 1902.

Mr. D. W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:

Yours of Mar. 13th at hand. We note that you

have referred Mr. Edward S. Cole of your city to us for Centrifugal pumps, for which please accept our thanks. We received his letter this morning, but before we can make him an estimate it will be necessary to have further information and we are writing for same to-day. Regarding pumps to be used in well casing will say that we will refer this matter to Mr. Jackson to answer: Also the question of rope transmission for the Ft. Worth plant. Mr. Jackson is out of the city at present and expect him back in three or four days.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BOYER.

W. E. B./W. C.

It is stipulated that the letter of March 31st, 1902, may be received in evidence and copied in the record as Defendants' Exhibit "M-5." [52]

**Defendants' Exhibit "M-5."**

San Francisco, Cal., Mar. 31, 1902.

Mr. Daniel W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

Answering yours of Mar. 15th, which was received while I was in Los Angeles,—concerning the question of rope transmission, will say that I did not hesitate before I went to Rockford to recommend vertical shafting, because we have always had good luck with it. We have a great many plants with 100 ft. of shafting or more, and at present I am not sure that we have had some customers using

even 200 ft.; but it is self evident, that if they will run 100 ft. all right, they will run 200 ft., as each one is an independent shaft between the bearings. The balance device can be arranged to carry almost any load except this one item, that a thrust bearing or ball bearing must be provided to carry the total weight of shafting and fittings while the pump is running empty.

The Rockford plant, however, convinced me that rope transmission was quite practical. We proved that it was only necessary to have the engine run perfectly steady without any throbbing, because of lost motion on the center, which can be completely overcome by sufficient weight on the fly wheels and setting the crank of the engine at  $90^{\circ}$  instead of  $180$  as our Rockford plant,—the William's engine, the one I recommended, is made that way. It is also made with an outboard bearing, so that it can carry in addition to the fly wheel, the strain of the rope.

**EFFICIENCY:**—It is quite evident that the rope transmission will be more efficient than the vertical shafting with rope transmission combined as you have it; you will note that the rope transmission as you propose, takes in the trouble of both rope [53] transmission and vertical shaft and high speed. You will have your little troubles also with the number of guide pulleys you propose to make your rope twist from horizontal shaft on the engine to vertical shaft on pump.

**VERTICAL SHAFT:**—If adopted, requires some 15 bearings to be oiled and which require attention, and it will be a very difficult task to so

install these bearings that they will not throw any grease, which if they do, means a very dirty and disagreeable shaft to climb up and down, while the rope transmission avoids nearly all of this.

**ROPE TRANSMISSION:**—I think we demonstrated at Rockford that the shape of the grooves was secondary consideration, still it did seem to work better with a comparatively flat groove on the drive pulley at the top of the well and the sharp groove on the pump pulley at the bottom. I think we demonstrated conclusively that there was no danger of slip with a very slight tension on the bottom pulley by making a  $45^{\circ}$  groove. I think we also demonstrated that the groove had but very little to do with the vibration. We also demonstrated that the length of rope did not add to the vibration, but when we shortened the rope by putting in riding pulleys, the vibration was very violent and quicker.

It is true in our ordinary practice here in California, we do not recommend the rope drive for small pumping plants for several reasons,—First, the average countryman cannot splice a rope. Second, most all our wells will fill up with water and cover the pump, sometimes 20 or 30 ft. and even more; there is no effort made to seal the wells up. In fact, we have no foundation whatever with the pump; it is suspended by the frame and from the top, as the pump has to be installed and dropped into the well when it is full of water and we wait until we have pumped it out before we attempt to stay the frame to prevent its [54] vibrating when running; but in your case, your well is sealed per-

fectly dry. You must have rope transmission any way, and if you install it as your suggest, it takes a much larger engine room. It is not as compact and easily looked after as if you adopted the Rockford plant, besides I repeat again that I was east and could hardly believe the facts that the efficiency of the rope drive was as good as we demonstrated it. Besides in your case you have all the loss of the rope drive and all the loss in vertical shaft besides the horizontal engine and the horizontal pulleys will all give you more trouble than the vertical tighteners and vertical engine.

**VERTICAL ENGINE:**—Is much more efficient than a horizontal engine and if you are striving to make the best plant, I will unhesitatingly advise a first-class cross compound vertical engine and a vertical rope drive for Ft. Worth.

**COST OF PLANT:**—The Horizontal series pump and base will cost some more than the vertical pump, but it is more than made up in the saving of the vertical shafting and bearings. But the room occupied will have to be considered, which I have not done as yet.

I herewith inclose an illustration of a small 3 series pump on base, that will give you some idea of it, but of course it will not give you any idea of size. We have got the vertical, which you can lay down horizontal and estimate the length of it and rope pulleys, & 2 bearings.

**SMALL PUMP IN WELL CASING:**—We have never taken the time to work this out carefully in full detail, but have done considerable sketching, and herewith enclose 2 of them,—one where the

shaft is in the discharge pipe; the other where the discharge pipe is made in two and the shaft is run between them. This pump has to be coupled together and dropped in the well and supported from [55] the top. We believe it is quite possible to work out an efficiency and satisfactory pump, and the cost would not be greater than any centrifugal pump for the same purpose, as all pumps have to have vertical shafting or connecting rods and discharge pipes; but it is special work, and we have not done enough of it to make an offhand estimate. As I wrote you before, we made a 10" pump something on these lines, but we used propeller blades for a runner instead of centrifugal pump runners and while our test pumped a large quantity of water, we did not make a thorough test of efficiency, but we did enough of it so that we decided that the efficiency is not as good as the centrifugal runner and for this reason abandoned it; but we can just as well use the centrifugal runner which makes it but a trifle larger in diameter, but it gives us a much better opportunity to balance the weight of the shaft and make a more compact plant, besides we are dealing with something that we are continually having experience with, and can design a pump with some certainty as to its efficiency, capacity and balancing power. As soon as we get time, we propose to enter upon a thorough experimenting with pump and test. We propose to manufacture a pump and thoroughly test it, when we will be able to give you definite information.

NEW ALBANY PLANT:—I am satisfied this will be all right. As that is direct connected to

motor and by setting it vertical, you do away with all belts or ropes and avoid putting the motor down in the damp well where the motor might be injured.

I am pleased to announce that they are packing your pumps for shipment to-day and regret that we could not ship them sooner, but believe that you will find them a first-class piece of work. We will send shipping receipt under another cover, & some *detale* Drawing & Specification how to install & [56] opperate.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/PL.

P. S.—Enclosed I hand you efficiency test of the Compound pump installed for the Bay Counties Power Co. which I wrote you about, also another test of an 18" 10,000 gallon pump that I sold to the Spreckels Sugar Co. at Spreckels, Cal. This test was made by the Sugar Co., their manager being a very competent man and testing it for his own information, so I think it is perfectly trustworthy. The Bay Counties Power Co. was tested by their experts, supervised by Mr. Vandegrift, who is an employee of mine and occupies Mr. Perry's position. I will send thise also under sepparate cover—as I have no coppies at this office.—B. J.

(Reporter's Note: The phrase "& 2 bearings" on page —— is in lead pencil. The words "& some *detale* Drawing & Specification how to install &



(Deposition of Daniel W. Mead.)

operate" on the bottom of page — are also in lead pencil.) [57]

Q. I notice, Mr. Mead, that this letter from Mr. Jackson, being Defendants' Exhibit "M-5," dated March 31, 1902, refers on page 3 to "sketching" and says "and herewith enclose two of them." Do you know what became of those sketches?

A. Why, I don't; it is possible that they are still in my records. We have recently moved and my records are, as far as drawings are concerned, pretty well scattered. I remember quite distinctly two sketches—they were not exactly what we call sketches, they were really outline drawings, what we would call outline drawings, that is, mechanical drawings, that were made in Mr. Jackson's office and sent. I don't remember whether they were enclosed in that letter, but I do remember very distinctly our receiving them—or my receiving them, either at or about the time I received this letter.

Q. You don't know where they are to-day?

A. I don't know where they are to-day, no.

Q. Have you or have you not made a search for them?

A. I can't say that I have made an absolute, thorough search; I have lots of drawings up at my University office that I simply haven't had time to go through, and I don't know whether it's there or not.

Q. Would it be a great task to refer to those before you leave the stand, in this matter?

A. Well, it would be a very large task. I don't know whether I could do it or not.

(Deposition of Daniel W. Mead.)

Q. Nobody could do it for you?

A. No, I don't believe they could. I could have somebody try, but if they said they couldn't find them I wouldn't feel satisfied whether they were there or not. Things of that sort. I wouldn't feel satisfied with anybody's search except my own.  
[58]

Mr. LYON.—If the witness is to give any testimony whatever in regard to such original sketches or drawings, we, of course, would demand the production of the originals if they are in his possession. We do not make this to inconvenience the witness but we desire the original evidence itself if it is available.

WITNESS.—I simply say this, I have got quite a lot of drawings up at the University. Now, I am perfectly willing to send one of my men up there and have him look through them. I know just what the drawing were, and I think he would recognize them from my description. I presume I could have that done perhaps this afternoon or to-morrow. In fact, I don't know, but possibly I could send my own son up there, he is out of the University just now, it is vacation, and I can have that done if you wish.

Mr. LYON.—I would like very much to have the originals if you possibly could produce them.

Mr. BLAKESLEE.—If you can discover them, of course.

WITNESS.—Well, I never throw away a thing of that sort and I don't like to say I haven't got

(Deposition of Daniel W. Mead.)

them, because you can see I have got my letters back for a good many years.

Q. Would it be possible for you to start that search now as we shall be briefly taking an adjournment, and you ought to be excused until after Mr. Clasman testifies, so that you can give us a return on that search by three or four o'clock this afternoon? A. I couldn't say.

Q. Will you do the best you can?

A. I will do the best I can.

Adjournment 12:15 P. M., by consent, until two o'clock P. M. [59]

2:00 P. M.

Parties appear as before and the following proceedings were had:

Mr. LYON.—Note this objection on the record, that William A. Clasmann of Milwaukee, Wisconsin, having appeared here at the request of the defendant, as counsel for plaintiff, having agreed as a courtesy to permit the interruption of the deposition of Mr. Mead to take the deposition of Mr. Clasmann at this time, defendants now announce that they will not take the deposition of Mr. Clasmann and he is excused from attendance. Plaintiff's counsel requested leave to take the deposition of Mr. Clasmann on behalf of plaintiff at this time, such leave being refused, although the witness Mead is not in attendance. Plaintiff objects to any waiting for the witness Mead to appear, and gives notice that any delay in the proceedings will be brought to the attention of the Court and Special Master on the question of imposition of costs.

Mr. BLAKESLEE.—Counsel for plaintiff's remarks will commence before the hour of two o'clock, and prior to their utterance we were attempting to get Mr. Mead on the phone. It is now two o'clock, and we shall repeat for the third time that attempt. His delay in appearing, if there be any substantial delay, is due to two reasons, the first of which was that he was to examine his records to endeavor to find some drawings about which he testified at the morning session. The second is, that we had never met Mr. Clasmann, and while expecting to call him, have concluded not to interrupt the deposition of Mr. Mead for that purpose and shall continue it as expeditiously as possible and probably not call Mr. Clasmann. We will now endeavor again to get Mr. Mead on the phone and get him here as soon as he can arrive. His office is only a block and a half [60] or less from this place.

After a brief intermission:

Mr. BLAKESLEE.—We have reached the witness Mead by phone and he states that he is conducting a search for these original drawings which both parties wish produced by him, and has two men working on the matter with him now. He hopes to be able to produce such drawings at three o'clock, less than one hour from now, and for no other purpose than to enable him to produce this primary evidence as requested by counsel for both parties, we are forced to suspend proceedings further until the hour of three o'clock P. M.

Mr. LYON.—We object to the suspension of the proceedings. Counsel has had two weeks in which

to prepare for the taking of this deposition, and should not interrupt the taking of the deposition in this manner. Search for the alleged drawings can readily be made after the usual hours for taking depositions.

Mr. BLAKESLEE.—This is not, we presume, to be an argument on the record, in violation or contravention of the equity rule pertinent to such things, but both sides seem to be of a mind to make statements at this juncture, and we wish to further observe that we are doing all we can at this great distance from the master's court and upon our first day in Madison on this matter, to promote this deposition of Mr. Mead's by producing the very best evidence he has. We regret the delay, but it seems necessary to the ends of justice, and we shall attempt to conclude our depositions in the east as promptly as possible for the accommodation of counsel on the other side as to any rebuttal depositions he may wish to take in this section [61] of the country. The present delay is quite an ordinary delay in matters of this sort, and is only necessitated by the fact that, as the witness has stated, he has to go outside of his own record at his own office and consult those of the Wisconsin University, which we understand he is now doing.

Mr. LYON.—The statement of counsel is objected to as not evidence, and if he wishes the statement to stand as a statement of fact we demand that it be produced in the regular order of producing evidence.

Mr. BLAKESLEE.—This statement, as far as

(Deposition of Daniel W. Mead.)

the search being made by the witness is concerned, is predicated upon the testimony of the witness given this morning. The procedure as defendants are conducting it in case E-42 is strictly in pursuance of the stipulation under which we are proceeding here, to wit, that defendants' depositions should be concluded prior to the taking of any depositions by plaintiff.

Mr. LYON.—The stipulation does not so read, as plaintiff's counsel reads it.

Mr. BLAKESLEE.—We stand on the stipulation as it reads.

The deposition was continued by the reappearance of the witness DANIEL W. MEAD at the hour of 2:55 P. M., at the same place and present as before.

Q. Prior to the noon recess, Professor, you were asked to make a search through any records available to you to attempt to unearth the sketches or drawings which you stated accompanied the letter from Byron Jackson, of the Byron Jackson Machine Works, of March 31, 1902, Defendants' Exhibit "M-5." Please state what you have done in that connection. [62]

A. Well, I had already made a search through my office files previous to this morning, but have found nothing. Since then we have moved our office—

Q. You do not mean since this morning?

A. Since the former search which was made in December, 1919, we have moved our office and have refiled all of our blue-prints and drawings and have gone to each drawing in our office one by one and classified them in their proper position, so that I have

(Deposition of Daniel W. Mead.)

again gone through the drawings and examined all of the drawings which I had of the Byron Jackson Machine Works. I did not find either of the so-called sketches or what I call preliminary drawings among those files. I had already looked at my house, where I have a few drawings. I made a personal research there and found nothing at that point. The only point where I had not searched was my office at the University. I sent my son, together with one of my principal assistant engineers, who has been with me for about fourteen years and who is particularly familiar with pumps, to the University office, gave him my keys and instructed them where they could find the drawings. They have just reported that they went through each blue-print at the University office. They were instructed to bring anything with Byron Jackson's name attached, or that looked like a centrifugal pump, and all they were able to find was some drawings of a centrifugal pump designed by Mr. J. W. Alvord. They were unable to find anything there. So I am satisfied that in my moving from Chicago to Madison the original sketches have become lost or destroyed and that they are not in my possession anywhere.

Q. Is there any other direction in which you could expect possibly to find those drawings?

A. I don't know of a single place. [63] I have looked every place where I would keep everything of that kind, and I don't believe I have them.

Q. Now, will you please state to the best of your recollection what was the disclosure of those drawings received by you from Byron Jackson accom-

(Deposition of Daniel W. Mead.)

panying that letter of March 31st, 1902?

Mr. LYON.—That's objected to as incompetent, no foundation laid for the introduction of secondary evidence, and as not calling for the best evidence.

A. There were two blue-prints that came, either with that letter or under separate cover, I am not positive in regard to that, but they were received about the same time, and were called by Mr. Jackson "sketches." Each of them had a title saying they were made for Daniel W. Mead and dated, as I recall it, along in March previous to the date of the letter. They were two entirely separate types of pumps—separate as regards the discharge features. One of them, as I recall it, had two discharge pipes that joined the series pumps down in the well and again joined in a common discharge at the surface. The shaft in this case went down to the well between the two discharge pipes and entered the pump-case through a packing gland. The shaft had bearings attached to the two discharge pipes. So that the whole thing could be lowered into the well and supported from the surface, the two discharge pipes furnishing really the support, and also guiding the shaft which was to drive the pump. The other sketch was differently arranged; with the same series centrifugal pumps at the bottom of the well, or down in the well, that discharged into a single discharge pipe, but contained an inner pipe which in turn enclosed the shaft, the discharge being outside of the inner pipe and inside of the outer pipe. Then the bearings [64] were contained inside of the outer pipe; in fact, as I recall it, going clear through and joining



(Deposition of Daniel W. Mead.)

the two pipes together and holding the shaft rigidly in place. The shaft that attached to the driving head above entered the center pipe and left it, entered the pump below and separated it from the discharged water. So that in both cases there was no contact between the water discharged by the pump and the shaft.

Q. Will you please look among the various papers and blue-prints upon the table here and see if you find any such drawing as last mentioned or described by you.

Mr. LYON.—Before the witness does this I would like to ask him a question, if he has not been shown a number of blue-prints by counsel for the defendant and shown them here to-day before he took the stand.

Mr. BLAKESLEE.—I object to the question as immaterial.

A. I have.

Q. Now, please so do.

A. Among these blue-prints on the table I find out which was one of the original so-called "sketches" that Mr. Jackson sent.

Mr. BLAKESLEE.—Witness picks out blue-print numbered at the bottom 1-C-75, over all of the written and numbered or figured data at the lower right-hand corner of which a blank sheet of paper is pinned to obscure such reading.

Mr. LYON.—I think the Professor's answer is ambiguous. He says: "One of the original drawings or sketches sent." So that we will know what he means, ask him sent when.

A. Sent either with or under separate cover, in

(Deposition of Daniel W. Mead.)

connection with Byron Jackson's letter of March 31st, isn't it?

Q. The letter you last mentioned, was, yes, 1902.

A. March 31st, 1902. [65]

Q. What resemblance is there between this blue-print you have selected and either of said sketches or drawings you have referred to as accompanying the last mentioned letter from Mr. Jackson?

A. Well, to the best of my knowledge and belief it's identical with the last one I described.

Q. How, with respect to size and dimensions of the parts shown on this blue-print, how do they compare as you recollect with the dimensions and sizes on the drawings you so received?

A. As near as I can recall they are identical. I couldn't swear to every dimension, but as I recall the sketch at this time it is identical with the original print sent me with Mr. Jackson's letter of March 31st, 1902. It is not in great detail, but shows the general character of the construction he proposed. I might add that this is also the drawing that was afterwards discussed by Mr. Jackson and myself in May and early in June of the same year in San Francisco.

Mr. BLAKESLEE.—Defendants offer in evidence the blue-print just selected by the witness, as Defendant's Exhibit "M-6," and ask the same be so marked. It is believed, for the purpose of assisting the reading of the record of the witness in this case, that this will be found to agree exactly with Defendants' Exhibit 3, and to be a blue-print thereof.

Mr. LYON.—Objected to as incompetent, not the

(Deposition of Daniel W. Mead.)

best evidence, no foundation laid for the introduction of secondary evidence.

Mr. LOFTUS.—Q. I hand you a blue-print which I have had marked for identification Defendants' Exhibit 1 and ask you how the same compares with the [66] one you have just identified in the previous answers and which has been offered in evidence as Defendants' Exhibit "M-6."

Mr. LYON.—Objected to as incompetent, not the best evidence, no foundation being laid for the introduction of secondary evidence, not the proper method of proof.

A. The two are identical.

Mr. LOFTUS.—In view of the refusal of counsel for complainant to stipulate that copies of exhibits offered in the Equity case No. E-42, duly certified by the notary, may be used in the case in the Western Well Works with the same force and effect as the original exhibits, and furthermore in view of the fact that there necessarily can be but one original, counsel for defendant Western Well Works offers a blue-print which the witness has just identified, and this produces the same in evidence as Defendants' Exhibit 1.

Mr. LYON.—Objected to as incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, not properly identified, not the proper method of proof.

Mr. BLAKESLEE.—Q. When did you first meet Mr. Byron Jackson, Mr. Mead?

A. Some time during the summer of 1896.

Q. And when next, if at all?

(Deposition of Daniel W. Mead.)

A. Well, the next time, he came on to Rockford when his engineer Mr. Perry was installing the Rockford plant. They had some trouble in installation and Mr. Byron Jackson spent—oh, I should judge six weeks or two months in Rockford trying to get the machinery in satisfactory running condition.

Q. And ever again after that? If so, when?

A. I don't remember meeting Mr. Jackson again until the latter part of May, 1902, although I had had extensive correspondence with [67] him and it is possible that I may have met him. I don't remember. I was not at San Francisco and he may have been in my Chicago office. I don't know whether he was or not.

Q. Where did you meet him the latter part of March, 1902? A. Not March, 1902.

Q. I beg your pardon. May, 1902.

A. I met him in his office in San Francisco.

Q. Under what circumstances?

A. He had already, I think, at that time contracted to build for me two pumping units for Ft. Worth, Texas, and I went out to see him primarily on account of those particular units. I was then at work at Ft. Worth, and I left Chicago in the latter part of May, arriving at San Francisco, so that I think I spent the last two days in May and perhaps the first two or three days of June. Then I went on to Los Angeles, and from Los Angeles over to Ft. Worth, where I was working.

Q. Have you any record or entry of any kind that would tend to fix or locate the date of that trip last

(Deposition of Daniel W. Mead.)

mentioned to San Francisco?

A. Yes, I have a diary in my office that gives my movements and gives that date; gives the date that I left Chicago and arrived in San Francisco, and when I left San Francisco and arrived in Chicago.

Q. When did you last consult that diary?

A. I looked it up within a month.

Q. As to those dates? A. Yes, sir.

Q. Now, did you have any talk or discussions with Mr. Byron Jackson in the latter part of May or first part of June, 1902, in San Francisco? [68]

A. Yes, I spent two or three days discussing various matters with him.

Q. Did you talk about pumps?

A. Yes, entirely on the subject of pumps as far as I recall. I don't remember any other subject we were discussing except pumps and their connections and methods of using centrifugal pumps on the class of work that I was doing.

Q. Was any reference made on that occasion, on any of those days in the latter part of May or first part of June, 1903, to the matter of your correspondence which you have testified to, accompanying one letter of which correspondence you received these two sketches which you have described.

A. Yes, that matter was discussed quite fully.

Q. Please state fully what was said in those discussions, giving the language used as far as you can remember it, and in all other respects state the substance of those discussions.

A. Well, the two plans that Mr. Jackson had submitted were discussed, the first one I described, of

(Deposition of Daniel W. Mead.)

the two discharge pipes, I objected to, because the pipes were so small that I thought the friction of discharge would be considerable, and I didn't like the arrangement. The last one described, of which the blue-print Exhibit "M-6" is a copy, I didn't understand fully, and we discussed that at some length. I did not appreciate the necessity of an inner pipe, and raised the objection that it added to the expense and inquired why it was used. Mr. Jackson called my attention to the fact that in deep wells frequently more or less sand is discharged, and that the sand coming up in the water was apt to get in the bearings and destroy the bearings. Another point that he made was that water lubrication was not [69] satisfactory and that the bearings should be lubricated with oil. The third point was that the friction of the moving shaft in the water decreased the efficiency, and that altogether he thought that the efficiency and durability of the pump would be greatly increased by the use of this interior pipe that kept the shaft away from the discharged water. I remember in that connection that my attention had been called—I don't know that it had been called by Mr. Jackson, but it had been called in connection with my professional practice, to the fact that the Wood propeller pump, manufactured at Los Angeles, had its bearings in the water, and that the bearings had frequently cut out, and when I visited Los Angeles on that trip, I believe it was, I visited an exhibit at the plant of the Wood propeller pump and discussed with them somewhat their particular plan. They had a pump in a store down somewhere in Los An-

(Deposition of Daniel W. Mead.)

geles. I am not familiar enough with Los Angeles to know the exact locality, and had a little exhibit where they pumped from one basin into another. Of course they only raised the water two or three feet there, but it showed the action of the pump. That pump was not a centrifugal pump; it was simply a series of propellers, a good deal like the propeller on a launch, that were replaced as I recall it about six feet apart, but an intermediate bearing; the intermediate bearing being not only for the purpose of a bearing, but also for the purpose of interrupting the tendency for the whole body of water to take up a circular motion instead of raising it to the surface. There were rather flat pieces, more like a spring, bent somewhat in the form of a letter S, so that when they were compressed they would go into the pipe and then they would spring out against the pipe. My recollection is they were about four inches long, so that when [70] the water came in contact with them it had to go longitudinally with the direction of the pipe and couldn't rotate with the direction of the shaft and propeller. That was one of the particular features of that particular pump.

Mr. LYON.—I move to strike out the answer and each part and parcel thereof, each sentence and each phrase, from the record, and exclude it from consideration, on the ground that it is not responsive to the question and upon the further ground it is simply the belief of the witness and not competent.

Mr. BLAKESLEE.—We call the master's attention to the first portion and large portion of this

(Deposition of Daniel W. Mead.)

answer, which it is submitted is directly responsive to the question.

Q. Do you remember any further details of those discussions or talks with Mr. Byron Jackson in the year 1902 at San Francisco concerning the nature and structure of this propulsion pump you discussed with them?

A. No. I don't remember any further discussion concerning the suction pump. I remember of some other discussion concerning the pump in its application to my particular work.

Q. Now in an answer a little while ago you referred to bearings, which as I remember it, were to be within this enclosing tubing surrounding the shaft. From what source did you first learn of such bearings?

Objected to as leading and suggestive and not the proper method of examination.

A. I learned concerning the details from Mr. Jackson. The original drawing was not in sufficient detail to tell about the arrangement of the bearings and that was a matter that was discussed in San Francisco. [71]

Q. At the time you have mentioned?

Mr. LYON.—Same objection.

A. In the latter part of May or first part of June, 1902.

Q. Please state what was said in that discussion or give the substance of such discussion.

Same objection.

A. Well, it was simply an explanation on the part of Mr. Jackson as to why he wanted the bearings en-



(Deposition of Daniel W. Mead.)

closed and separated from the water, and how he proposed to do it.

Mr. LYON.—I move to strike the answer from the record and exclude it from consideration upon each of the grounds stated in the objection; upon the further ground that it is a mere conclusion of the witness, not the proper method of proving a conversation, not competent.

Q. Do you remember what was discussed in any statement by Mr. Jackson at that time of his proposal in these respects; and if so, please state the same, or the substance thereof if you can't get the words.

Mr. LYON.—Same objection, and is not the proper method of proving a conversation.

A. I do not remember the details of the discussion, but only the discussion in a very general way, as the matter was at that time not applied to any particular job, but only to anticipate work along the line of water supply.

Q. Do you remember the substance of what was said about the bearings?

Mr. LYON.—Same objection, as leading and suggestive.

A. I remember the statement that the bearings of the shaft were to be located inside the central pipe and so that they could receive oil from the surface and be free from the action of [72] either standing water or water discharged by the pump, and the bearing plates were also to act as a separator between the outer pump and the inner pump and to give, together with the pipes, a continuous connection from the drive head above to the pumps below.

(Deposition of Daniel W. Mead.)

Q. In two places in your last answer you have referred, in one place to "inner pump" and in the latter place to "outer pump." Please state what you meant to convey in those respects.

A. Well, I should have said "inner pipe," inner and outer pipes; referring to the discharge pipe and the inner pipe that contained the shaft.

Q. Now, after you left California, what, if anything further, was done about this matter of centrifugal pumps and pump shaft with enclosing tubings, about which you have testified?

Mr. LYON.—That is objected to as leading and suggestive and assuming facts not testified to by the witness.

Mr. BLAKESLEE.—Add on there "that is, within your own knowledge."

Mr. LYON.—The objection is repeated.

A. I had no further correspondence or communication with Mr. Jackson concerning this particular type of pump until in the spring of 1903, when I was called in by the Pabst Brewing Company to consult with them as to the best method of securing a water supply for the wash water used in their brewery. In that connection I called the attention of Mr. Pabst to the correspondence and conversations which I had had with Mr. Jackson—

Mr. LYON.—We object to the witness detailing conversations with third persons, not in the presence of either Mahlon E. Layne or anyone connected with or representing the plaintiff corporation. [73]

Mr. BLAKESLEE.—We object to counsel's interrupting the witness. The purpose is obvious.

(Deposition of Daniel W. Mead.)

We insist that counsel follow the orderly procedure of objection or motion if he has any desire so to do and not to interrupt the witness during the statement of his answers.

Mr. LYON.—We object to the statement of counsel for the defendant in so far as it attempts to impute to counsel for plaintiff any desire to interrupt the witness. We insist the witness confine his answers to competent matters, and it is clearly incompetent for him to testify to conversations which he had with third parties not in any manner connected with this litigation, and not in the presence of anyone representing the plaintiff in this case, and insists that the procedure is correct in interrupting the witness, so as to preserve the record.

Mr. BLAKESLEE.—We object to counsel arguing on the record and insist that the witness be not interrupted during his answers, as obviously there is no one here to rule upon any such procedure, and counsel should withhold any objection he may make to the answers until the answer is completed, or object after the question.

Mr. LYON.—If counsel for defendants in case E-42 is taking this deposition *de bene esse* and it is to be read and objected to question and answer before it becomes a part of the record in E-42, the situation would be different from what has been the understanding of counsel, and I request that counsel for the American Well & Prospecting Company indicate his understanding in this regard.

Mr. BLAKESLEE.—We only insist that counsel permit the answers to be uninterrupted, and if he

(Deposition of Daniel W. Mead.)

is dissatisfied with them [74] he has his remedy by motion to strike out at the end of the answer.

Mr. LYON.—We insist that the procedure is proper, as the witness in all court proceedings in giving an answer which is incompetent is subject to being interrupted and this is why the objection to the incompetent portion of his answer is made of record.

Mr. BLAKESLEE.—We insist that the interruption is not proper and that the witness be given the chance to express himself in answer in continuity.

(Last portion of answer of witness read, as follows: "In that connection I called the attention of Mr. Pabst to the correspondence and conversations which I had had with Mr. Jackson—")

A. (Continued.) —and advised Mr. Pabst that I thought Mr. Jackson could design and build a centrifugal pump which would be capable of raising about a million gallons per day of 24 hours from a well that was then being built at the Pabst Brewery and in which a reciprocating pump had proven a failure as far as its ability to secure the desired quantity of water. This reciprocating pump had been placed in there and was not satisfactory. In that connection Mr. Pabst authorized me to write Mr. Jackson and see if he would undertake such design—which I did.

Q. Do you remember when you wrote Mr. Jackson in that regard?

A. Well, I have the letters here. I simply remember that it was early in 1903. As near as I can

(Deposition of Daniel W. Mead.)

recall, it was in April. I am not quite positive in regard to the date, because it is a good while ago.

Q. Can you produce that letter you have referred to? A. I can.

Q. Please do so. [75]

A. I wrote two letters to Mr. Jackson, or the Byron Jackson Machine Works, both dated March 18th, 1903, and both in regard to the Pabst Brewing Company, one contained some other matters as well.

Mr. BLAKESLEE.—Witness produces what are apparently carbon copies of letters both dated March 18th, 1903, and addressed to the Byron Jackson Machine Works. It is stipulated that the shorter of these letters may be now copied into the record as Defendants' Exhibit "M-7." It is further stipulated that the longer of these letters as produced by the witness may be received in evidence and marked Defendants' Exhibit "M-8" and copied on the record as follows:

**Defendants' Exhibit "M-7."**

March 18th, 1903.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

In connection with the enclosed letter asking for bid on a pump for the Pabst Brewing Company, I would especially call your attention to the fact that the Pabst Company now have a number of deep well pumps which they will gladly replace by a centrifugal pump should this prove as successful as I believe it will.

I would also call your attention to the fact that there are numerous other places in this neighborhood where a pump of this nature can be installed, provided one successful installation can be shown.

I believe I sent you some days ago a catalogue of [76] Hart & Co., who are apparently experimenting in this line. Their work has been entirely experimental, and they have no plant in successful operation. They are also afraid to guarantee any reasonable results.

The main question with the Pabst Brewing Co. will not be "How cheap," but "How good," and while it is essential that the cost should be a reasonable one, I would particularly ask you to figure on first-class work, on which we can absolutely depend.

I am notified from Fort Worth that the pumps for that place have been received. It will probably be about thirty days or more, however, before we will begin to install them.

Yours very truly.

**Defendants' Exhibit "M-8."**

March 18th, 1903.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

The Pabst Brewing Co. of Milwaukee are obtaining a portion of their water supply from deep wells. They have experimented with various deep well pumps which have not given entire satisfaction.

I have been called in to advise with them con-

cerning a pump to install in a well which is just about completed. This well is 15 inches internal diameter for a depth of 200 ft., and is expected to furnish somewhere from 700 to 900 gallons a minute at this depth. [77]

I have told Mr. G. G. Pabst concerning the deep well centrifugal pump which I have discussed with you at various times, and have affirmed my belief that you could build a series centrifugal pump for this service which would be economical and durable in operation. Mr. Pabst has requested me to write you and explain this matter in detail to you, and ask you to make us a proposition for furnishing a pump capable of raising at least 700 gallons a minute from a depth of 220 feet. We should desire you to make us figures on both the pumps themselves and the shafting and piping necessary to suspend the pump in the well, and to connect it with the motor at the surface. Our idea is, for the present, to operate this pump by quarter turned rope drive and steam engine, and we would be able, with the engine, to give sufficient variation in speed to give the pump the speed found most desirable within, of course, reasonable limits. We should want special attention given to the arrangement of the bearings and shafting, so that the pump would be both carefully balanced and remain in perfect alignment, and, for this reason, would prefer to have you figure on the drop piping and shaft, as above mentioned.

We would also like a guarantee from you that an engine of a given horse power will operate the pump under the conditions stated, and that you will

(Deposition of Daniel W. Mead.)

guarantee the pump for twelve months' operation.

I shall be glad to hear from you at an early date with a proposition as above outlined, and a sketch of your general arrangement of shafting, bearings, etc.

Yours very truly.

Q. Where have these carbon copies been, Professor, since the [78] letters were written?

A. They have been in my files.

Q. And the letters themselves were mailed in the usual course of mail? A. They were.

Q. And they were written on the dates that appear on the top of them? A. They were.

Q. What, if anything, do you know about the well or wells referred to in this longer letter, Defendants' Exhibit "M-8"?

A. My knowledge is that it was drilled by Gray Brothers of Chicago, who had the contract for both drilling the well and furnishing the pump, and they, with Mr. Pabst's consent, got me to go up and see if I could devise some way in which the water could be guaranteed and obtained from that well. I had nothing to do with the drilling of the well and simply went up there in the spring of 1903 to see if anything could be done to get the desired results.

Q. Do you know what the diameter of that well was?

A. My recollection is it was something like 15 or 16 inches, down for I think about 200 feet, and I remember that we were to have a suction pipe extend down below the pump, so that I think the



(Deposition of Daniel W. Mead.)

maximum lift to get at least 700 gallons a minute was possibly 220 feet. We thought that an extra 20 feet might be reached by suction if necessary.

Q. Did you ever hear anything from Mr. Jackson about this matter after that?

A. I did, with some delay. I wrote him again on April 1st, not having heard from him, and wired him on April 8th concerning the same matter.  
[79]

Q. Have you any record of that letter and that wire?     A. I have.

Q. Please produce same.

A. The letter is dated April 1st, 1903, and the dispatch dated April 8th, 1903; both in regard to the bid I had asked him to make on the Pabst pump.

(Witness produces apparently carbon copies of a letter dated April 1st, 1903, and the Western Union Telegram dated April 8th, 1903.)

Q. Where have these copies been since the letter and wire were transmitted by you?

A. Been in my files.

Q. And did you transmit the original in the usual course of mails and telegraph?     A. I did.

(It is stipulated that this letter and this wire of April 1st and April 8th, 1903, respectively, may be received in evidence as Defendants' Exhibits "M-9" and "M-10," respectively, and copied in the record as follows:)

(Deposition of Daniel W. Mead.)

**Defendants' Exhibit "M-9."**

April 1st, 1903.

Byron Jackson, Esq.,  
San Francisco, Cal.

Dear Sir:

Will you kindly send us figures on the pumping plant for the Pabst Brewing Company as early as possible.

Had expected to hear from you some days ago concerning [80] this matter.

Yours very truly.

**Defendants' Exhibit "M-10."**

THE WESTERN UNION TELEGRAPH  
COMPANY.

April 8th, 1903.

To Byron Jackson Machine Works,  
San Francisco, Cal.

When can I expect proposition on pumps for Pabst.

DANIEL W. MEAD.

Paid.

Q. What, if anything, transpired in these matters after that?

A. On April 8th I received a dispatch from the Byron Jackson Machine Works, which dispatch I have in my files.

(Witness produces what purports to be a Western Union Telegraph dispatch dated April 8th, 1903, and signed Byron Jackson Machine Works.)

Q. This was delivered to you, was it, in the usual course of telegraphs? A. It was.

(Deposition of Daniel W. Mead.)

Q. And where has it been since that time?

A. In my files.

Q. Received on the date given?      A. It was.

It is stipulated that this telegram, omitting the printed form heading and other data, except the date, address, [81] substance and signature, may be received in evidence as Defendants' Exhibit "M-11" and copied into the record as follows:

**Defendants' Exhibit "M-11."**

San Francisco, Cal., April 8th, 1903.

To Daniel W. Mead,

1st National Bank Building.

Mailing proposition on pumps for Pabst today.

BYRON JACKSON MACHINE WORKS.

Q. What, if anything further, transpired in this matter?

A. Some days after, I can't remember the date—I haven't been accustomed to marking the date of receipt on my letters—I received a letter from Mr. Jackson dated April 8th, 1903. This, by the way, has been copied by photostat.

It is stipulated that this letter of April 8th, 1903, marked Defendants' Exhibit "M-12," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-12."**

San Francisco, Cal., April 8, 1903.

Mr. D. W. Mead,

Chicago, Ill.

Dear Sir:

We are in receipt of your letter asking for quo-

tation on deep well centrifugal pump for Pabst Brewery; pump to have a capacity of 700 G. P. M., water to be pumped from a 15" bored well 220 ft. deep. For this service we take pleasure in itemizing and quoting as follows: [82]

- 1—Series Jackson vertical centrifugal pump having a capacity of 700 G. P. M.
- 200—ft. of 1 7/16" shafting.
- 10—1 7/16" special couplings.
- 20—1 7/16" spreader bars with self aligning boxes.
- 400—ft. of 5" casing for vertical discharge.
- 35—ft. of 8" casing for suction.
- 1—Patent S. O. top pulley frame.
- 1—Pulley for same.

Necessary oiling pipes to connect to oil the bearings delivered F. O. B. cars San Francisco for the sum of \$1,500.00.

We enclose blue print showing a rough design of a vertical centrifugal pump 600 G. P. M. 100 ft. In your case we would use 2-5" casings for discharge pipe, one on each side of the shafting. This, of course, is somewhat of an experiment and we would test the pump here before shipping and same would have to be accepted at our works. Should you require us to send a man to Milwaukee to install the plant and put same in operation, the price would be \$2,000.

As to the efficiency, we would obtain on this pump, we cannot say until after we have tested it. We presume, however, you should provide for about 75 or 100 HP.

Mr. Jackson says he would not care to take the

(Deposition of Daniel W. Mead.)

order at this time and guarantee the results for a year, but would accept an order for such a plant contingent on the drawings and plans being satisfactory, and if so, would construct the pump and test it and if the efficiency was satisfactory and your company willing to accept the plant F. O. B. San Francisco, after a thorough shop test, showing the capacity and power required under a given head which should be measured by correct gauges and the power by [83] a dynamometer pulley and the pump showing a satisfactory efficiency, we would then construct the balance of the discharge pipe and shaft according to plans and deliver the pump, and the party should accept it at our works and pay the money for it and take the chances of operating it himself.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BOYER.

WEB/PL.

P. S.—We estimate that the plant without the casing pipe would weigh between 4,000 and 5,000 lbs., and the freight would be approximately \$150. We have figured in the casing pipe for discharge on this plant, but would buy it in the east and have it delivered at Milwaukee. Should you prefer furnishing the casing pipe yourself, we would deduct it from the above bid.

Q. Did you receive this letter, Defendants' Exhibit "M-12," in the usual course of mails?

Objected to as leading and suggestive.

A. I did.

(Deposition of Daniel W. Mead.)

Q. Do you remember how soon after this date you received it?

A. Well, I know that it was before April 14th—on or before.

Q. Of that year?      A. Of 1903.

Q. And where has this letter been since you received it?      A. In my files.

Q. In relation to the signature in writing per a name that appears to be Boyer, do you know that signature?      A. I do.

Q. It is the signature of whom?

A. Why, one of Mr. Jackson's assistants, that I had frequent correspondence with. [84]

Q. I notice in this letter, Defendants' Exhibit "M-12," a reference to "5-inch casing for vertical discharge," and a later reference to "8-inch casing for suction." Can you tell me what those items mean?

Mr. LYON.—We object to the form of the question as leading and suggestive, and as incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence.

A. No, I don't know. No, I don't remember. Didn't know at the time just what was intended, except I assumed that this was the pump complete. I haven't any drawings of the pump of course at this time. That simply gave the details of what he proposed to furnish and I didn't attempt to analyze it.

(Answer of witness read.)

Q. Did you have any understanding at the time of what "casing for vertical discharge" meant, as

(Deposition of Daniel W. Mead.)

mentioned in this letter? If so, state.

Mr. LYON.—That is objected to as leading and suggestive, incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence.

A. There had been no understanding at this time concerning any of the details.

Q. Did anything further transpire in this matter that we are discussing, to your knowledge?

A. Mr. Jackson's proposition as given in his letter of April 8th, 1903, was not complete, and Mr. Pabst desired to know what the date of delivery would be, and I wired Mr. Jackson on April 14th, 1903, asking for the date of delivery and received a wire from him stating the date that he would guarantee to deliver. [85]

Q. Have you any record of these wires?

A. Copies of both wires are in my files.

(Witness produces what purport to be copies of wires on Western Union Telegraph Company blanks, both dated April 14th, 1903, one signed by Daniel W. Mead and the other by Byron Jackson Machine Works.)

Q. As to the one signed Byron Jackson Machine Works, when did you receive same?

A. That was received on the same date, April 14th, I think. It might possibly have been received the next morning. I am not positive in regard to that.

Q. Where has this telegram been since you received it?

A. They have both been in my files.

(Deposition of Daniel W. Mead.)

Q. And this other one, signed by Daniel W. Mead, how was that transmitted, how was the telegram transmitted?

A. Well, it was transmitted by Western Union.

Q. When? A. On April 14th, 1903.

Q. By whom?

A. By myself. That is, it was written by myself.

It is stipulated these two wires may be received in evidence and copied into the record as Defendants' Exhibit "M-13" and "M-14," respectively, the first being with respect to the wire sent by Daniel W. Mead and being as follows:

**Defendants' Exhibit "M-13."**

April 14th, 1903.

To Byron Jackson Machine Works,  
San Francisco, Cal.

What date of delivery will you make on Pabst pump?

DANIEL W. MEAD. [86]

**Defendants' Exhibit "M-14."**

April 14th, 1903.

San Francisco, Cal.

To Daniel W. Mead.

Would like sixty days time for Pabst pump see letter.

BYRON JACKSON MACHINE WORKS.

Q. What, if anything, further transpired in this matter and next in order?

A. The next that transpired was a dispatch from me to Jackson offering him \$2,500 to furnish the



(Deposition of Daniel W. Mead.)

pump and erect it and operate it for ninety days. That is to say, they offered \$2,500 for the pump delivered in sixty days if operated for ninety days successfully.

Q. And when did you make that offer?

Mr. LYON.—What is the date of the telegram?

A. April 16th, 1903.

Q. Can you produce any record showing that?

Witness produces copy of telegram dated April 16th, 1903.

Q. Has this been in your files since that time?

A. It has.

Mr. LYON.—Let the record correctly show the fact that the witness is handed a copy of a telegram dated April 16th, 1903, which has been marked Exhibit "M-15," and which is as follows:

**Defendants' Exhibit "M-15."**

April 16th, 1903.

To Byron Jackson Machine Works,  
San Francisco, Cal.

Pabst accepts sixty days shipment pump complete [87] installed by your representative twenty-five hundred subject to ninety days successful operation.

DANIEL W. MEAD.

Q. I notice that this telegram, Mr. Witness, refers to the acceptance by Pabst of a shipment of pumps at \$2,500. You have referred to a wire offering that amount. Have you such a copy in your file?

A. No; the original letter of Jackson's, I believe, did not contain a price, or if it did, it was ignored,

(Deposition of Daniel W. Mead.)

and Mr. Pabst offered him \$2,500 for that pump in this telegram, to be delivered in sixty days, to be erected by Jackson, and to operate successfully for ninety days. This was a counter offer on my part for the Pabst Brewing Company, and contains matter outside of the—well, now, the trouble is, here is a lot of stuff that is in two or three places. Here is one on April 15th, in which a direct offer is made, and that was separated from the other because of this photostat process, so that's the reason I didn't find it. That's (indicating) the one on the 15th.

Q. This was sent to you on that date?

A. It was.

Q. And this copy has been where since?

A. In my files.

It is stipulated that this copy of telegram dated April 15th, 1903, may be received in evidence and copied into the record as Defendants' "M-16" as follows:

**Defendants' Exhibit "M-16."**

April 15th, 1903.

To Byron Jackson Machine Works,  
San Francisco, Cal. [88]

Pabst offers twenty-five hundred pump shipped within thirty days erected and operated successfully for ninety days by your representative.

DANIEL W. MEAD.

Q. Did anything further transpire in this matter that you know of? If so, please state.

Q. Just after these last telegrams I received a letter from Jackson dated April 14th, 1903, in re-

(Deposition of Daniel W. Mead.)

gard to the general proposition of this deep well pump. The original copy of this was, in accordance with my best recollection, sent to Pabst, and all I have is a copy of the original, which I had made before sending the original away.

Q. Then this is a copy of a letter you received from Mr. Jackson, is it?

A. Yes. I don't think there is anything in there that is of interest to you, but that explains some things in regard to Mr. Jackson's first pump.

Q. When did you receive the letter of which this is a copy?

A. It was received probably somewhere about the 18th; several days, three or four days after its date there.

A. And where has this copy been since you received the original?

A. The copy has been in my files.

It is stipulated that this letter from Byron Jackson dated April 14th, 1903, marked Defendants' Exhibit "M-17," may be received in evidence and copied into the record as follows: [89]

**Defendants' Exhibit "M-17."**

**COPY.**

San Francisco, Cal., Apr. 14, 1903.

Mr. D. W. Mead,

Chicago, Ill.

Dear Sir:

Referring to our telegram of today, and our letter by Mr. Boyer, Apr. 8th, regarding deep well centrifugal pump for Pabst Brewery, Milwaukee.

I think it is to our mutual interest for me to write a letter of explanation why your original question was not more promptly answered, and the reason for the paragraph at the end of Mr. Boyer's letter, dictated by myself.

As you know, I have already given this problem some thought and have made some sketches and have actually made one pump for a 10" well, which we pump some 400 G. P. M.; but with a low efficiency (if I remember right) about 33 to 40%. This pump was made with propeller veins rather than centrifugal pump veins, and while this test was not a very thorough one, it was quite sufficient to convince me that the propeller vein was not the proper form for any pump, except something of a very low lift and special circumstances. My study of this problem was quite sufficient to convince me beyond a doubt that your friend Edw. C. Hart & Co., 59 Dearborn St., Chicago, who published the pamphlet entitled the "Multiple Pumping Machinery & Turbines" is entirely theoretical, and the chances are that he has never made or tested, not even one, centrifugal pump. The only effect that it had on me was to excite my curiosity and to wonder what he expected to make out of such publication.

Now, the above remarks are intended to explain in a measure why I delayed writing, and because I desired to take the necessary time to make a better plan than anything I have made [90] up to date, and submit it to you with the bid that would look at least reasonable from my standpoint, that is, something I would be willing to offer and recom-

mend, but the facts were that our Mr. Vandegrift, who makes our pump drawings, was in the country on a vacation, and so I had no one who was drilled in this line, to work out my ideas; but I hope to take the time to do it myself, because I believe that it is the only way I will succeed in getting what I think might do the work, because it certainly is an unusual problem to make a revolving shaft 200 ft. long and suspended in a well and balance it with hydraulic pressure, and pump 600 to 1000 G. P. M. out of a well only 15" in diameter.

One item which is a hard one to solve is the fact that there are no bored wells that are straight for 200 ft. They are not even approximately straight. Sometimes they curve several feet out of line. Then the oiling problem is a very important one, and then the practical method of coupling the sections together, with satisfactory arrangements for taking the pump out of the well again for inspection and repairs, which must inevitably take place sometime.

I have full faith, however, that this problem can be worked out, and I have long since been intending to undertake it when I had the leisure time, but for the past few years, since I made the first deep well pump, I have had all I could do in our special line, and so have not done anything further with the experiment than to occasionally make and file some sketches when we got to talking and thinking about it. But your second letter urging us to take some action,—Mr. Boyer took up the matter and made an estimate, and then after he wrote the letter and estimate, I saw fit to add the last paragraph. It seems to [91] be a very indefinite proposition,

(Deposition of Daniel W. Mead.)

yet it is a proposition whereby your client takes no risk except to wait until we produce something or other that suits him, which if we had a prospective order contingent on the drawings and the pump after test being satisfactory, it would probably spur us up to take immediate action, which if we would push the matter, we could at least make a design and build a pump in the 60 days, but we could not insure success until after it had been attained.

So if your client feels like placing an order, please state the lowest limit of efficiency and the conditions under which he will accept it, if we can meet the conditions, stating the highest number of revolutions they would think practical for a rope drive. You are undoubtedly aware that it is pretty hard to get pulleys small enough to work up a high speed with rope transmission, and I would think an ordinary good flat belt would be better, because I think it would be necessary to adopt pretty high speeds, 1200 or 1500 revolutions at least.

It is true that there is a great demand for a pump of this character, and I am willing to spend a little money in trying to develop it, but it would not be good business on my part to make a guarantee for a year so far away from home, unless we had ample time to succeed or give it up before shipment.

Yours truly,

BYRON JACKSON MACHINE WORKS,

Per BYRON JACKSON. [92]

Q. What, if anything, further transpired in this matter, next in order?

A. On April 18th, I received a wire from Mr.

(Deposition of Daniel W. Mead.)

Jackson stating that he would mail the contract and commence work on the Pabst pump Monday, the same as if it was signed. A copy of that I have in my files.

(Copy of telegram produced by the witness.)

Q. And did you receive this wire in the usual course of telegraph? A. I did.

Q. And where has this telegram been since that time? A. Been in my files.

It is stipulated that this wire from Byron Jackson dated April 18th, 1903, marked Defendants' Exhibit "M-18," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-18."**

**COPY.**

San Francisco, Cal., Apl. 18-03.

Daniel W. Mead,

1st National Bank Bldg., Chicago.

Will mail contract and commence work Pabst pump Monday the same as if signed.

**BYRON JACKSON MACHINE WORKS.**

Q. What next transpired in regard to this matter?

A. I think perhaps I have omitted one dispatch which perhaps is necessary to give a full history of this Pabst pump, namely, one received from Jackson on April 15th, 1903, which seems to have been out of order, in which he stated that the price offered was satisfactory. [93]

Q. You received it on that day?

A. Yes, sir.

(Deposition of Daniel W. Mead.)

Q. Where has it been since then?

A. In my files.

It is stipulated that this wire from Byron Jackson dated April 15th, 1903, marked Defendants' Exhibit "M-19," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-19."**

San Francisco, Cal., Apl. 15, 1903.

To D. W. Mead,

605 First National Bank Building.

Price satisfactory but must have sixty days to succeed or abandon before shipment. See letter mailed.

**BYRON JACKSON MACHINE COMPANY.**

Q. What transpired next in order?

A. On April 16th I wrote Mr. Jackson reciting the fact that I had sent him a wire, and a few days later I received a letter dated April 13th, in which he acknowledges certain wires and discusses this Pabst pump. That letter from Mr. Jackson was undoubtedly forwarded to the Pabst people, and I simply kept a typewritten copy in my files. These two letters that I referred to were given here.

Q. They have been in your files since that?

A. They have been in my files since that time.

It is stipulated that the letter from D. W. Mead dated April 16th, marked Defendants' Exhibit "M-20," and letter from Byron Jackson dated April 15th, marked Defendants' Exhibit "M-21," may be [94] received in evidence and copied into the record as follows:



**Defendants' Exhibit "M-20."**

April 16th, 1903.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

Have just wired you as follows: "Pabst accepts sixty day shipment. Pump complete installed by your representative, twenty-five hundred, subject to ninety days successful operation," which I now confirm, and by which I place order for Pabst Brewing Company of Milwaukee, Wis. for a Series Centrifugal Deep Well Pump, in accordance with your favor of March 6th, with the following modifications, that you are to send this pump to Milwaukee and erect it in the well described in my letter of March 18th, and connect the same with a motor or engine, which will be supplied by the Pabst Brewing Company, together with belt or rope drive as may be later mutually agreed; that said pump shall operate successfully for a period of ninety days from the time it is placed in running order by your representative and connected to the motor above mentioned; that by successful operation is meant that the pump shall deliver at least 700 gallons of water per minute, provided the well will furnish that amount of water without drawing the head down below 220 ft. below the surface, and that the pump shall operate at that capacity at an efficiency of not less than 50%, and will require a motor not larger than the size to be specified by you.

You will please advise us as early as possible as to the proposed speed of this pump, and the type

of connection [95] you would recommend to the motor, and the size of the motor you will require.

Yours very truly.

**Defendants' Exhibit "M-21."**

**COPY.**

San Francisco, Cal., Apr. 15, 1903.

Mr. Dan W. Mead,  
Chicago, Ill.

Dear Mr. Mead:

I have just written the enclosed already mailed letter before receiving your telegram reading as follows:

"Pabst offers twenty-five Hundred pump shipped within thirty days erected and operated successfully for ninety days by your representative."

to which I have just replied by wire as follows:

"Price satisfactory but must have sixty days to succeed or abandon before shipment. See letter mailed."

You will readily understand that we can make this experiment here without much loss, provided that we fail to succeed, while if we shipped the plant and installed it before making the experiment, or having a chance to abandon the order, we necessarily are out the cost of the vertical shaft and freight and the man's time, that can be avoided by testing the pump in the Works, when we can be reasonably sure of the complete success.

I have, in my time, taken orders where we required an unlimited time to keep trying until I either succeeded or gave up the job, but in this case,

I am perfectly willing to limit the time to 60 days.

I want to say that we have recently installed a testing plant in the Works, where we have an engine and dynamometer, [96] pulley and every convenience for measuring the power required. We have demonstrated over and over again that the heads measured by correct pressure and vacuum gauges, gives the same results as pumping against an actual head, and we can with but very little expense measure the end thrust on the pump shaft so as to determine whether it will approximately carry the load of shafting and couplings. I do not think, however, that it would be possible to make a complete balance of the shafting but it would be approximate enough so that good ball bearing thrust collars will carry the end thrust of shaft either up or down. Further, I think I have a method of oiling these bearings that will insure oiling and reasonable durability.

So I repeat that I am anxious to accept the order with the condition that we can have 60 days time before shipping the plant, with the privilege of abandoning the order, if we find we are not successful, giving your client the option of extending the time if we needed it or not.

I do not think it would be practical to make all the pipe fittings there, still we would undoubtedly make a portion of them there in order to save freight, as you know that if we buy the pipe in this market, we have to pay freight both ways, so if we were successful in the pump it is quite possible that we could have the pipe and shafting fitted up there according to your drawings, under a contract which

(Deposition of Daniel W. Mead.)

you could supervise for us.

Hoping that something may come of this correspondence, I am,

Yours very truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON. [97]

Q. What, if anything, next transpired, Mr. Mead?

A. My recollection is that Mr. Jackson submitted a contract, which was duly forwarded to the Pabst Brewing Company, and which was not satisfactory to the Pabst Brewing Company. I have, however, no copy of that contract.

Q. Was that contract submitted through you?

A. My recollection is that it was. In fact, I think practically all of the correspondence between Jackson and Pabst was through my office. I don't think they wrote direct about anything. I know that Jackson wired me that he was going to send a contract, and my recollection is he did send a contract, and that I forwarded them, they were to be in triplicate, and that the triplicates were forwarded to Pabst, and Pabst was not satisfied with it, and returned his proposed contract for the same thing, which is dated April 20th, 1903, and I believe a photostat has been made of it.

Mr. LYON.—We object to the statement of the witness as to the alleged date of this contract, on the ground that it is incompetent, not the best evidence, and no foundation laid for the introduction of secondary evidence, and move to strike that from the record and exclude it from consideration upon each of these grounds.

Q. What do you now produce?

(Deposition of Daniel W. Mead.)

A. The form of contract offered the Byron Jackson Company by the Pabst Brewing company and signed by the Pabst Brewing company—not by Jackson.

Mr. LYON.—Is this one of the originals that you had at that time?

A. This is one of the originals. [98]

Q. And it came to you from whom?

A. From the Pabst Brewing Company.

Q. How was it received? A. Received by mail.

Q. And this signature on the fourth sheet, "Pabst Brewing Company, by G. G. Pabst, Vice-president," do you know that signature?

A. I do. I have a number of letters from Mr. Pabst.

Q. And that was the signature of the then vice-president of the Pabst company? A. It was.

Q. This was received by you on the date given on it at the head of it?

A. Well, about that date. Probably a day later.

Q. And where has this triplicate copy of contract just produced by you been since that time?

A. It has been in my possession; in my files.

Mr. LYON.—Q. I notice, Mr. Mead, that this contract contains a rubber stamp, "Pabst Brewing Company, by ———, Vice-president," and the signature "G. G. Pabst." At the top there is the date April 20th, 1903, although the body of the contract does not seem to bear a date. Now, do you know of your own knowledge that no contract was entered into prior to April 20th, 1903, between Byron Jackson and the Pabst Brewing Company in

(Deposition of Daniel W. Mead.)

regard to this pump installation that you have been talking about?

A. Why, I think I can say yes, because all of those things passed through my hands, they had no communication with each other, and I know that a contract was not signed until considerably later than this. [99]

Q. Then you are certain that it was not until considerably later than April 20th, 1903, that the contract was actually signed by both of the parties?

A. Yes.

It is stipulated that the contract last identified by the witness, marked Defendants' Exhibit 22, may be received in evidence and copied into the record as follows: [100]

**Defendants' Exhibit "M-22."**

April 20, 1903.

Triplicate.

AGREEMENT between BYRON JACKSON of San Francisco, party of the first part and the PABST BREWING COMPANY of Milwaukee, Wisconsin, party of the second part.

WHEREAS there has been correspondence between the parties hereto by letters and telegrams, the following is intended to embody the terms of an agreement, for the manufacture and delivery of a deep well Centrifugal pump, to be driven by steam engine, with either rope drive or flat belt, as shall be determined hereafter, after working drawings of the pump are completed.

WELL:—Is guaranteed by the party of the sec-

ond part to be about 15" internal diameter at any point in its full depth, thus permitting a series Centrifugal pump, made not more than 14 in. outside diameter to pass freely through well casing. That one inch (1 inch) clearance between the outside diameter of pump and casing will be sufficient to provide for any imperfections of uneven diameter in the well casing. Also that the well shall be approximately straight, permitting a 10" casing pipe with screwed couplings to pass through its full length of 200 feet practically straight.

**PUMP:**—To be of the Centrifugal Series type four (4) or more steps, having a capacity of 700 gallons per minute; Revolutions not to exceed 1500 per minute. The pump shaft to be encased in a pipe within the discharge pipe. Bearings approximately every ten (10) feet and suitable means provided for oiling same which will allow no mixture of the oil and water. Total length from bottom of suction to discharge at top of well, 200 feet. [101] The pump to be suspended in the well by the discharge pipe.

**HORSE-POWER:**—The net water horse-power is estimated at 40; the H-P to drive pump at the first coupling joining shaft of the pump, not to exceed 80 H-P. Horse-power required to drive the 200 ft. vertical shaft not to exceed 8 H-P.

The party of the first part agrees to undertake the designing and manufacture of the above pump, including discharge pipes, pulley and shafting complete and deliver same at Milwaukee and install it in the well at the Pabst Brewing Company's Works, on foundations to be supplied by the said Pabst

Brewing Company. A suitable derrick is also to be supplied by the said Pabst Brewing Company and placed over the well of sufficient height to raise each section of pump and pipe in place one above the other, each section not to exceed 20 ft., requiring the top pulley of derrick to be approximately 40 ft. high.

**TEST:**—It is agreed by the parties to this contract that the pump shall be tested at the works of the party of the first part in San Francisco by a dynamometer pulley, measuring the power. The capacity of the pump shall be measured by a weir and if the test shows the capacity to be 700 gallons, under gauge pressure of 95 pounds, total suction and discharge pressure, measured by correct gauges placed on the pump, and the vertical end thrust of the shaft upwards is approximately equal to the weight of the proposed driving shaft, and the pump is otherwise apparently satisfactory to the Contractor, he agrees to ship it to Milwaukee within sixty (60) days from above date, but if not satisfactory to the Contractor and he does not believe that it would run ninety (90) days successfully and to the satisfaction of the party of the second part, he has the option of abandoning [102] this contract.

**TIME OF DELIVERY:**—The party of the first part agrees to proceed at once and use due diligence to make the plans and construct the pump as specified and ship same on or before sixty (60) days from the above date. He will also submit the plans to D. W. Mead, the consulting engineer, as well as the said Pabst Brewing Company as soon as made and will make either rope drive or belt pulley as



may be selected by the party of the second part. It is understood and agreed by the parties to this contract that the party of the second part is to furnish the belt and power for operating the pump during the ninety (90) days successful run.

**PAYMENT:**—The party of the second part agrees to pay for the above pump as specified Twenty-five Hundred Dollars (\$2500.00) at the expiration of ninety (90) days successful operation.

**GUARANTEE:**—The party of the first part guarantees the pump as specified and to have a capacity of 700 G. P. M. and require no more than 88 h. p. delivered at the pulley or 80 h. p. delivered at the first shaft coupling at the pump, and the shaft bearings and couplings, pipe and pump will be made of the best material and workmanship for the purpose: that when pumping from 400 to 700 G. P. M. at 200 foot head, the shaft will be partially and approximately balanced by the discharge pressure of water acting on the pump runners and the unbalanced end thrust of shafting either up or down will be held in place by a suitable end thrust bearing. And the parties of the second part agree to guarantee the party of the first part against loss caused by the well casing being less than about 15" diameter or any other cause preventing the free passage of the pumps and pipes into the [103] well, and will accept the plant as specified and pay the contract price when it has operated successfully ninety (90) days with reasonable wear and tear, unless it shall be satisfactorily demonstrated by said party of the first part that failure in this respect shall have been caused by failure of supply of water in

(Deposition of Daniel W. Mead.)

the well. The party of the first part furthermore promises and agrees to indemnify and protect the party of the second part against all loss, cost or damage by reason of all patent infringement suits relating to said pump, and agrees to assume in their behalf the defense of all such litigation as may be instituted against said second party on account of alleged infringements of patents.

The parties hereto subscribe their names and executed in duplicate.

PABST BREWING COMPANY.

By G. G. PABST,

Vice-prest. [104]

Mr. BLAKESLEE.—Q. What next transpired in this matter, if you know?

A. The next that my records show is a letter from Mr. Jackson dated May 5th, 1903, inquiring about the delay in furnishing certain information. This delay was a matter of the delay of the Pabst Company, and the original copy was sent to the Pabst Company.

This (indicating) was in regard to a dummy that was to be let down the well, and letting the dummy down the well was to be done by the Pabst company. I sent this copy to the Pabst company and they advised me in regard to the effect, and I answered this letter by wire on May 18th that the "Fourteen inch dummy goes down two hundred feet. Contract mailed."

Mr. LYON.—That's a wire?

A. That was a wire. I find here under date of May 14th that I wrote Mr. Jackson concerning this

(Deposition of Daniel W. Mead.)

matter before that telegram. This comes in really before the telegram. That was written in my own handwriting with a piece of carbon paper, and that's a carbon copy. Those two together constitute the answer to that letter.

Q. This copy of letter by you of May 14th, 1903, has been in your files since you sent it?

A. It has.

Q. You sent it in the usual course of mail?

A. I did.

Mr. BLAKESLEE.—I now refer to Defendants' Exhibit "M-25."

Q. This copy of letter of May 5th, 1903, received by you from Byron Jackson Machine Works, the original thereof was received in due course of mail?

A. It was. [105]

Q. And where has this been kept since you received that? A. In my file.

Mr. BLAKESLEE.—Reference is had to Defendants' Exhibit "M-23" in the preceding question.

Q. I now refer to Defendant's Exhibit "M-24." When did you send this telegram?

A. On May 18th, 1903.

Q. Where has this copy been since that?

A. In my files.

It is stipulated that the letter from Byron Jackson Machine Works, dated May 5th, 1903, marked Defendants' Exhibit "M-23"; a telegram from Daniel W. Mead, dated May 18th, 1903, and Def. Ex. "M-24," a letter from Daniel W. Mead, dated May 14th, marked Defendants' Exhibit "M-25," may be

received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-23."**

San Francisco, Cal., May 5, 1903.

Mr. D. W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:

Regarding the Pabst Brewery contract, I am a little surprised that I have not heard about it, as it is quite important that I should know the largest diameter of pump that will pass down through the 15" well. As I wrote you before, I had made the sketch 14-1/2" diameter, but thought that the imperfections of the well casing might prevent its freely passing down the well, and so have arranged drawing now to 14" diameter. I have also [106] designed a system of oiling the pump bearings by means of a single quarter inch oil pipe to pass down through the inner pipe which encases the shafting and connected to the pump and to the bearing by a system of drill holes in the castings, which I believe will be a successful method of oiling.

It is true it cannot be adjusted as nicely as the Rockford arrangement, because it must remain as it is made before putting it in the well, but notwithstanding that the pressure will be different in each of the series of bearings in the pump, the total pressure of the head above will be in excess of the highest pressure because of the location of the holes in the pump. I believe it will be a successful method of oiling and may be used either with a light

soft grease or with a light liquid oil, but on the whole, I am pleased with the design and shall make it and test it as soon as possible, but I hope to get the information regarding the net diameter of the well in time to change the diameter of the pump if necessary, but I think it important to have it the largest possible to go in the well.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

**Defendants' Exhibit "M-24."**

May 18th, 1903.

Byron Jackson Machine Works,

411 Market St.,

San Francisco, Cal.

Fourteen inch dummy goes down two hundred feet.

Contract mailed.

DANIEL W. MEAD. [107]

**Defendants' Exhibit "M-25."**

Danville, Ill. 5-14-03.

Byron Jackson Machine Co.,

San Francisco, Cal.

Gentlemen:

I wired you to-day concerning size of Pabst's well and I am sending you herewith a blue print showing how the well was tested, also a letter from Grey Brothers which tells of the test. Please return letter after reading same. Mr. Pabst advises us he will have a test made with a dummy pump as you suggested. This will take several days and

(Deposition of Daniel W. Mead.)

I will wire you the results as soon as obtained.

Very truly,  
DANIEL W. MEAD.

Pabst will write you direct with contract.

Q. Have you a letter dated April 29th?

A. I have no letter of April 29th that I find, except one of the Geneva pump. That mentions the Pabst Brewing company's pump in that letter, however, and is quite likely the one to which you refer.

Mr. LYON.—That letter of April 29th, 1903, was part of the correspondence between Byron Jackson and yourself at this time, wasn't it? A. Yes.

Q. Then let us have that in this connection.

A. It says: "Subject: Additional Remarks on the Geneva Pump," and does contain some remarks in regard to the Pabst Brewing Company's pump.  
[108]

(The letter last referred to and identified by the witness was marked for identification Defendants' Exhibit "M-26.")

It is stipulated that the letter from Byron Jackson Machine Works under date of April 29th, 1903, marked Defendants' Exhibit "M-26," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-26."**

San Francisco, Cal., Apr. 29, 1903.

Mr. D. W. Mead,

Chicago, Ill.

Dear Sir:

Subject: Additional Remarks on the Geneva Pump:—

I note that Mr. E. C. Hart Co. are willing to make the Geneva pump and install it complete for \$750.00. Of course I could not compete with them if they propose to make it at cost as they may estimate that ordinary standard pipe and fittings can be used in such jobs. While I do not think so, I am satisfied that the couplings for the pipe must be selected and specially threaded and demonstrated to be perfectly straight; the same applies to the inside pipe that I propose to make, while I note from his pamphlet that he proposes to let his shaft run in the water. Further I note that his pulley stand seems to me to be rather a frail design. Further he may have his designs and patterns already made and does not count them in the cost of manufacture. Further he may be more anxious than I am for an opportunity to experiment, while I am not very anxious for a contract for just for the glory that is in it. I am getting old enough now that I like to see [109] a little profit in each transaction. And further, I find that where we make guarantees of efficiency and durability that we must have something more than the cost of the plant in order to make a living and so for these reasons I think that the prices that I name are about right. It is true that this design of a pump does not take very much material or work after it is once developed, but at present no such pump has been developed, and I want to get a price that will help to pay for developing, and now that I have the order for the Pabst Brewing Co., I propose to make this pump and test it anyway, whether it is ever shipped and installed or not, and I am not going to wait even

(Deposition of Daniel W. Mead.)

for the answers to the questions in the letter submitted herewith, but will expect an answer at the earliest possible.

Hoping to get your advice and other information asked for as soon as possible, I am,

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/PL.

Mr. BLAKESLEE.—Q. Then you don't find any other letter of April 29th, 1903?

A. No, I don't. I don't believe I ever had such a letter. That is, I don't find it anywhere here.

Q. Any further correspondence following this matter?

A. Yes. I have two letters from Byron Jackson, one dated May 20th, 1903, and one dated May 23d, 1903, in regard to the Pabst pump and the contract therefor. The one of May 23d contained a copy of a letter of similar date, which Mr. Jackson sent me, and stated that it was the copy of a letter he had just written [110] the Pabst Brewing Company. This copy is a letter-press copy and is dated the same date, May 23d, 1903.

Mr. LYON.—The letter-press copy that you have just referred to is the one that was enclosed in this letter of May 23d? A. Yes.

Witness produces a letter dated May 20th, 1903, signed "Per Byron Jackson."

Q. And when did you receive this letter?

A. Well, some time after May 20th, 1903.

Q. And in the usual course of mails?



(Deposition of Daniel W. Mead.)

A. Yes.

Q. Where has it been since?

A. Been in my files ever since.

It is stipulated that the letter above referred to, from Byron Jackson Machine Works under date of May 20th, 1903, marked Defendants' Exhibit "M-27," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-27."**

San Francisco, Cal., May 20, 1903.

Mr. D. W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:

We are in receipt of yours of May 14th regarding the Pabst well. I received the blue print which has the largest ring only 13½" diameter and even if it was the right diameter, I would not consider it a safe guarantee that the pump itself would go in the well because the rings are further *pa* apart [111] and might pass around an obstacle that the pump would not. But I have also received your wire dated May 18th reading "14" pump goes down 200 ft. contract mailed." This I consider definite and will make the pump 14" diameter which is the size I am making the patterns, but had suspended the work since May 14th because of the uncertainty and we had arrived at a place where we must be definite. Our Mr. Vandegrift is back now and we will push the work to a finish and hope to have it

(Deposition of Daniel W. Mead.)

tested, enabling us to ship it on time if it does the work satisfactorily when tested.

Yours very truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC.

P. S.—Enclosed return W. A. Gray's letter.

Witness also produces a letters signed "Per Boyer," dated May 23d, 1903.

Q. When did you receive this letter?

A. A few days after May 23d, 1903.

Q. Received it in due course of mails?

A. In due courses of mails.

Q. Do you know this signature of Mr. Boyer?

A. I do.

It is stipulated that the letter signed "Per Boyer" under date of May 23, 1903, marked Defendants' Exhibit "M-28," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-28."**

San Francisco, Cal., May 23, 1903.

Mr. Daniel W. Mead,

Chicago, Ill. [112]

Dear Sir:

Enclosed I hand you copy of letter I am writing the Pabst Brewing Company and regret very much that the company thought it necessary to make these changes in my contract.

The first of course you will note is impossible. The second I really do not know how I would go about it to demonstrate it to them that the water

was not in the well should they see fit to doubt it, and further, if I could, there is not money enough in it to justify me to do any developing work. This matter of proving the capacity of wells is the most expensive trouble that I have in our business, and even under favorable circumstances I have had much contention to demonstrate that the water was not in the well, because,—that as soon as the centrifugal pump lets go, caused by the water receding frequently it will not pick it up again without stopping, but where there is considerable supply the water comes up so quickly, that there is no method of measuring except by pressure and vacuum gauges, and even then some will not believe it, especially if they want to turn the plant down and not pay for it. But in this particular case I would like to have you tell me how it could be demonstrated that the water was there if the pump started and show water for a short time and then let go? The pump is 200 ft. below the surface and there is only 21½" between the discharge pipe and the well casing and I confess I do not think of any way just now to measure how far the water recedes, and I would like to have you suggest some means of measuring the depth to which the water recedes. The third objection regarding to patent, I think my reasons are clear and should give no offense. I am anxious to do this work, but I think [113] the Pabst Co.'s contract shows that they propose to be very critical and will not lend their friendly assistance, but will say that it is up to me. They have not put a cent of money in it and therefore I am not as anxious as I would be if I felt that

(Deposition of Daniel W. Mead.)

they would give me friendly assistance and were anxious to get a good pump.

You readily understand that after I have made a few thousands of these pumps and know all about them, I might not be so timid, but at present I want to be convinced that the Pabst Co. are anxious and will give me friendly assistance, and will not expect me to develop their well.

Hoping that you will take time to consider this and give me your expert opinion about it, I am,

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BOYER.

BJ/PL.

Q. The letter-press copy of letter of May 23d, 1903, addressed to Pabst Brewing company and signed Byron Jackson Machine Works, per Byron Jackson, and enclosed in the letter of May 23d, 1903, from Jackson to Mead (Defendants' Exhibit "M-28"), is now copied on the record under the usual stipulation, marked Defendants' Exhibit "M-29," and is as follows: [114]

**Defendants' Exhibit "M-29."**

May 23, 1903.

Pabst Brewing Co.,  
Milwaukee, Wis.

Dear Sirs:

Beg to acknowledge receipt of yours of May 18th, returning a copy of the agreement I wrote up between us and substituting copies written up by yourself, I regret very much that I am unable to

subscribe to the changes you have made in it, but as I intend to complete the pump and test it, I am still willing to make an effort to make satisfactory contract, but if not, of course the pump will not be shipped even if the test comes out satisfactory. My reasons for not signing the contract as you have made it is as follows:

FIRST:—In your contract under heading of “Pump” in the line next to the last on first page, reading as follows:—“which will allow no mixture of the oil and water.” I think this is an impossibility to make such a design, besides my blue prints are very clear and show that the excess of oil after passing through all the bearings on the line shaft will discharge into the well and I specially mention this in some of my correspondence with Mr. Mead. This objection, however, is a common one and was made at Rockford and many other places where we put in city water works pumps, but after years of use, the amount of oil passing into the water has not proved a serious item; but if it is a serious item in your case, I do not know how to remedy it and for this reason, if no other, I would have to decline your contract.

SECOND:—In the guarantee clause on the last page commencing on the third line at “A” and ending at “B” written in [115] pencil, reading as follows:

“unless it shall be satisfactorily demonstrated by said party of the first part that failure in this respect shall have been caused by failure of supply of water in the well.”

Now the fact of failure of water supply in the well

may be self evident to me or any other expert on pumps and wells, but the purchaser may be very skeptical and hard to convince. The reason I say this, is because I have had a very large experience in this line, and have been required to spend large sums of money to demonstrate to the purchaser that the well did not have even water enough to supply a hand pump, when he had expected more than 1000 G. P. M., and the well was wet and had water standing in it and it was a very difficult task to convince him that the water was not there. While I not only believed it, but knew it and had positive knowledge about it. And for this reason, if you believe water is in the well, and I do not believe it, I shall require you to demonstrate that the water is there; why, because my pump will demonstrate the fact as well as any other.

I therefore decline to sign a contract where it devolves on me to develop the well, or to do any work at all that is caused by the want of supply of water.

If you can make any specifications how you will go about it to prove that the water is there when the pump that I install demonstrates that it has no water to pump, I should like to see the specifications, but I confess that I know of no way to demonstrate this, only by the fact that it don't pump water when I have tested the pump and found that by a certain number of revolutions it does pump the quantity of water measured by a weir and against the head measured by gauges. [116]

THIRD: In this same guarantee on the last page commencing at "B" and ending at "C," reading as follows:—

“The party of the first part furthermore promises and agrees to indemnify and protect the party of the second part against all loss, cost or damage by reason of all patent infringement suits relating to said pump, and agrees to assume in their behalf the defense of all such litigation as may be instituted against said second party on account of alleged infringements of patents.”

My reason for declining to sign this is FIRST,—I propose to apply for a patent for this pump as drawn and specified if it proves satisfactory, and when I do, I will then learn through the patent office whether there are any other patents which it infringes, and after obtaining such patent, I am willing to subscribe to such a clause, but at present I decline to do so, because I believe that a wealthy corporation like yours is more liable to be sued for infringement than I would be, and if so, the damages might be much greater than the royalties or cost of it. Besides I would have to defend suit away from home and other parties being vitally interested, I feel that the sum involved in this contract would not justify such an undertaking. As the law prevents the patentee to choose whether he shall take action against the user or the manufacturer or the vender, he is most likely to choose the one having the most money, where he thinks the damages will be greatest.

In conclusion I wish to say that I tried to make a contract that would be fair to both parties and at present I am willing to stand by that contract and I propose to complete the pump and test it in any

(Deposition of Daniel W. Mead.)

event and for this reason I return the contract as I made it up, hoping that it will be satisfactory, [117] but if you can make it more satisfactory to you and still satisfactory to me, there is time yet to try again.

I will send a copy of this letter to Mr. Mead, hoping that you and he may succeed in making a contract that we can both subscribe to.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON,

Proprietor.

BJ/PL. [118]

Q. What next transpired in this matter?

A. Under date of June 9, 1903, Mr. Jackson wrote me on several matters, among which was the pump he was building for me for Ft. Worth, Texas; some comments concerning his return of the contract that the Pabst Brewing Company had had me forward, and some further comments on a pump he was to build for Geneva, Wisconsin. Now, that was the next in order.

Q. This letter was received by you, when?

A. Early in June, 1903, and it has been in my files ever since.

Q. And this is the signature of the same Byron Jackson? A. It is.

The letter last identified by the witness was marked for identification Defendants' Exhibit "M-30."

It is stipulated that the letter from the Byron Jackson Machine Works under date of June 9th,



1903, marked Defendants' Exhibit "M-30," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-30."**

San Francisco, Cal., June 9, 1903.

Mr. Daniel W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

I beg to acknowledge receipt of yours of June 4th asking for further time on the Fort Worth pump, which is granted. While we need money and lots of it, like everyone in business, still we always expect to extend favors to our customers, when they [119] treat us right.

PABST BREWING CO.—As you probably know by this time I returned the contract that this company made out, because of the changes they made in it. I sent you a copy of the letter I wrote them and I have recently had a letter from them saying that they had taken the matter up with you and hoped to make a contract that would be satisfactory to me. I replied that I was not delaying the pumps, but would make them regardless of the contract, as I had faith that they would be alright when finished. I can see, now, however, that we are a little doubtful whether we will be on time, but near enough no doubt, if the parties are anxious.

I certainly was surprised that they should put in the contract that we would guarantee not to get any oil in the water, as that was impossible, besides I

(Deposition of Daniel W. Mead.)

do not think they should expect us to demonstrate that there was any water in the well unless they were satisfied to believe the action of the pump; As I would be confident that if the pump started and worked for a short time alright and stopped, it was undoubtedly caused by want of water.

GENEVA PUMP:—Is being made 11" diameter to make sure of clearance; Your telegram June 3rd, received. I have got the drawing complete for this pump and have started the pattern work but I am in doubt, however, of this being as efficient a pump as the larger diameter, as it is so small it cramps it and has to handle the water faster; But I have concluded to make it and take our chances on the test, which will be reported and I hope will turn out alright.

Yours very truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC. [120]

Q. What next transpired in this matter?

A. Apparently in the latter part of June, 1903, I was in Detroit, Michigan, and wrote a letter to Mr. Jackson, a copy of which I have not on file, but discussed the Pabst pump, and I have a copy of the letter written by Mr. Jackson to me in answer to my letter of June 24th, his letter being dated June 30th, 1903, and the original having gone forward to the Pabst Brewing Company, and a copy which I had made remaining in my file.

Q. And what you produce is a copy?

(Deposition of Daniel W. Mead.)

A. That is the copy of the original letter of Jackson to me.

Q. And you received the original letter when?

A. Early in July.

Q. In the usual course of mails? A. Yes.

Q. And this copy has been in your files ever since? A. Ever since.

The letter last produced and identified by the witness was marked by the reporter for identification Defendants' Exhibit "M-31."

It is stipulated that the letter from the Byron Jackson Machine Works under date of June 30th, 1903, marked Defendants' Exhibit "M-31," may be received in evidence and copied into the record as follows: [121]

**Defendants' Exhibit "M-31."**

**COPY.**

San Francisco, Cal., June 30, 1903.

Mr. Daniel W. Mead,

Chicago, Ill.

Dear Sir:

I received yours dated Detroit, June 24th, and have also received a new contract from the Pabst Brewing Co. I note your method of measuring the static head in the well, and if there is room to pass the  $\frac{1}{4}$ " pipe by the pump and terminate exactly at the end of the suction, I see no reason why your method would not test the point at which the water receded in the well, but would measure the static head, but would not give us the advantage of the friction head, still this friction head I think could

be estimated satisfactorily to all parties.

**OIL IN WATER:**—This item is not satisfactory in the contract. It reads as follows:

“Bearings approximately every 10 ft., and suitable means provided for oiling same which will allow no undue mixture of the oil and water, which would make it unfit for the uses of the party of the second part.”

Now, I shall have to decline to sign this part of the contract, because the undue quantity will all depend on the amount of oil supplied to the oilers and the use for which the water may be intended, because I know of no method of retaining the oil in the bearings and all of the waste oil is there to pass into the water pumped. Theoretically, the oil that is wasted from the vertical shaft might float on top of the well water and thus accumulate in large quantities and never get into the pump unless the water was pulled down to the suction limit; but, practically, there may be sufficient water supplied from above the surface of water in well to carry all the oil down and into the suction of the pump as fast as pumped; but this fact can be understood as well by the Pabst people as by me or anyone else. They must take their own risk and it is not necessary that I should take it.

The pump is nearly finished, and will be tested as soon as finished, and a complete report made both to you and the Pabst Company, and if satisfactory to me when tested, I will cross out this clause regarding the oil in the contract and sign it, and if acceptable to the Company, will then complete the piping and shafting, and install the pump

(Deposition of Daniel W. Mead.)

as soon as possible. It is already past the 60 days, so I think it the proper thing to change the dates as it is impossible to deliver on time now that it is 10 days past the time it should be shipped, and it will probably be ten days yet before the pump is tested. I am pleased to state, however, that I think it looks all right.

I herewith enclose copy of this letter, that you may forward to the Company, with any suggestions you have to make.

I am pleased to hear a favorable report from the Fort Worth pumps and I expect they will make a good record, as we have [122] to beat the Rockford plant in making them, both in workmanship and efficiency.

Yours very truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

Mr. LYON.—Q. You have no way, Mr. Mead, of giving us the substance of your letter of June 24th, 1903, which you say you wrote from Detroit to the Byron Jackson Machine Works? A. No, sir.

Q. And to which this Exhibit "M-31" is a reply?

A. No, I have not. I have no copy of it.

Q. You haven't any recollection as to what was discussed in that letter except that it generally referred to the contract?

A. My recollection is it was simply a discussion of some of the disputed points in the contract between Pabst and Jackson, trying to get them together.

(Deposition of Daniel W. Mead.)

Mr. BLAKESLEE.—Q. What next transpired in this matter, Professor?

A. The next was a letter from Jackson.

Q. A wire?

A. A wire from Jackson, which I presume is in answer to a letter of mine asking the progress on the Pabst pump and the Geneva pump. Is it important that you have my letter asking him for this? I presume I have got it here scattered somewhere among these various files. I don't think the thing is of any importance whatever, but that's the next thing that I find in my file.

Mr. LYON.—If you happen to have it I would like to see it. I don't know that it need be offered.

Mr. BLAKESLEE.—If you want to, you can look that up between now and tomorrow some time.

Witness produced a telegram dated August 1st, 1903, marked for identification Defendants' Exhibit "M-32."

Q. When did you receive this?

A. August 1st. [123]

Q. And where has it been since?

A. It has been in my files.

It is stipulated that the wire from the Byron Jackson Machine Works under date of August 1, 1903, marked Defendants' Exhibit "M-32," may be received in evidence and copied into the record as follows:

(Deposition of Daniel W. Mead.)

**Defendants' Exhibit "M-32."**

San Francisco, Cal., Aug. 1, 1903.

To D. W. Mead,

1st National Bank Bldg.

Expect test Pabst pump first next week Geneva pump patterns ready for foundry will wire result of test

**BYRON JACKSON MACHINE WORKS.**

WITNESS.—I am unable to find the copy of letter to which this telegram of August 1st was a reply.

Q. What next transpired in this matter?

A. I next received a dispatch from Byron Jackson dated August 15, announcing a satisfactory test of the Pabst pump, together with, a few days later, a letter written on the same date, a copy only of which letter is in my file; the original was sent to Pabst for their information.

(Witness produces the wire just mentioned, marked for identification Defendants' Exhibit "M-33," and the copy of letter mentioned dated August 15th, marked for identification Defendants' Exhibit "M-34.")

Q. This wire of August 15th was received by you when?

A. About August 15th. On August 15th, I think. [124]

Q. And has been in your files since then?

A. It has.

Q. The original of this letter to you of August 15th, 1903, from Byron Jackson was received when?

(Deposition of Daniel W. Mead.)

A. Was received along about August 18th to 20th.

Q. And in due course of mail? A. Yes.

Q. And where has this copy of that letter been?

A. The copy has been in my files ever since.

It is stipulated that the wire from the Byron Jackson Machine Works under date of August 15th, 1903, marked Defendants' Exhibit "M-33," and the copy of letter from Byron Jackson, dated August 15th, 1903, marked Defendants' Exhibit "M-34," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-33."**

San Francisco, Cal., August 15th, 1903.

D. W. Meade,

214 S. Park Ave., Austin.

Preliminary test Pabst pump very satisfactory cannot complete test until Wednesday next.

BYRON JACKSON MACHINE WORKS.

**Defendants' Exhibit "M-34."**

(COPY.)

San Francisco, Cal., Aug. 15, 1903.

Mr. Daniel W. Mead,

Chicago, Ill.

Dear Sir:

I have just wired you as follows:—"Preliminary test [125] Pabst pump very satisfactory: cannot complete test until Wednesday next."

It is hardly necessary for me to write again my regrets because of the delay in getting this pump tested, but at the same time it seems only fair to



myself and you that I should make some explanation because the delay has not all been caused in making the pump, but has been delayed on account of the testing plant being occupied with other orders, and the plant itself being delayed because of the new dynamometer pulley having to be altered after trial, but we finally got the Pabst pump on the stand yesterday and made a short run at a half head and a corresponding speed and power showing very clearly that we will get a much better efficiency than 50%. As I was not present I will not attempt to give you the details, but I feel confident that we can fill the contract if we have not exceeded the time limit so far that the Pabst Company would decline to accept the pump.

It is my intention now to complete the test by Wednesday next and to write up a new contract fixing another time for delivery and completion of the plant.

If our final test is as satisfactory as we believe it will be the pump is ready for shipment with the exception of the pipe and shafting and the pulley, all of which I think can be made in Milwaukee, and save both time and freight, as our man could go there and superintend the fitting and the cutting of the pipe and shafting and probably have it all fitted up before the pump had arrived by freight. Please advise me by wire if the company will extend the time as suggested, and will accept the pump without the oiling and patent clause that they had inserted in my contract. [126]

I will state this much in detail regarding our test, that the efficiency is much better at a 1,000

(Deposition of Daniel W. Mead.)

gallons capacity than at 700, demonstrating that the pump has ample capacity if the well will supply the water, and I want the company to bear any expense necessary to prove that the well has the capacity because I shall not ship the pump unless I know that it will pump whatever the well supplies, and I shall put a clause in the contract to this effect because the price that I will receive for the plant installed will not justify me in undertaking to develop their wells, but at present I will say that I am very much enthused with the new deep well pump, and am quite confident that it is the coming pump for deep bored artesian wells.

Yours respectfully,

BYRON JACKSON.

Q. What is the next in order in this procedure?

A. On August 22d I answered Mr. Jackson's letter which I have just handed you, and I have a copy here in my files of my answer.

Q. This letter is dated August 22d, 1903. You sent it in the usual course of mails on that date?

A. I did.

Q. And this copy has been where since?

A. It has been in my files ever since.

Copy of letter last identified by the witness was marked for identification Defendants' Exhibit "M-35."

It is stipulated that the letter last referred to under date of August 22d, 1903, marked Defendants' Exhibit "M-35" may be received in evidence and copied into the record as follows: [127]

**Defendants' Exhibit "M-35."**

August 22d, 1903.

Byron Jackson Machine Works,  
San Francisco, Cal.

Gentlemen:

Replying to your favor of recent date concerning the pump for the Pabst Brewing Co. of Milwaukee, I wish to say that there is no doubt but what the pipe, shafting, pulleys, etc., can be furnished in Milwaukee and need not be shipped from San Francisco.

Mr. Pabst writes me as follows: "In regard to the oil, we think that Mr. Jackson ought to be able to make some sort of a guarantee after completing the test of the pump, and that he ought to be able to judge for himself whether the guarantees which he can give will do for our purpose. We agreed to drop the patent clause in the last contract, and we also specified a method for testing the well for water."

I would suggest that you make out a new form of contract, and include such guarantee concerning the question of oil as you are willing to make, and forward the same to the Pabst company.

In regard to measuring the water in the well, I would say that I have used the method I suggested, viz., by air pressure in a small pipe running down the well, in a great many cases, and that it can absolutely be relied on. I usually run the air pipe down several feet beyond the pump, and the exact position of the water can be told within a very small fraction, which, of course, depends on the accuracy of the gauge.

(Deposition of Daniel W. Mead.)

As there has already been considerable delay in the [128] matter of this pump I trust that you will give these matters your immediate attention.

Yours very truly.

Q. What next occurred in this matter?

A. The next I find is a letter from Byron Jackson dated September 5th, 1903, in which he inclosed a proposed contract and asked me to look it over. The contract as sent by Mr. Jackson was duly signed by him and was forwarded to Pabst. I retained, however, the original letter and copy of the contract that he inclosed with it, and hand you those two papers.

Q. This copy of contract you made yourself, did you?

A. It was made in my office. I didn't make it myself, no.

Q. And it has been in your files since?

A. It has.

Q. This letter of September 5th, 1903, was received by you when?

A. About September 8th, or thereabouts.

Q. And this is the signature of Byron Jackson to it? A. It is.

Q. This letter has been in your file since?

A. It has been in my file since.

The letter produced by the witness was marked for identification Defendants' Exhibit "M-36," and the inclosed contract so produced was marked for identification Defendants' Exhibit "M-37."

It is stipulated that the letter and contract above last referred to, marked Defendants' Exhibit "M-

36" and "M-37," respectively, may be received in evidence and copied into the record as follows:  
[129]

**Defendants' Exhibit "M-36."**

San Francisco, Sept. 5, 1903.

Mr. Daniel W. Mead,  
Chicago, Ill.

Dear Sir:

Enclosed I send you proposed contract for the Pabst Brewing Co., that you may inspect it and make any suggestions you think necessary before submitting it to the Pabst Brewing Co. You will note that I make no guarantee regarding oil injuring the water or making it in any way unsuitable for the use of the Pabst Brewing Co. I think this decision should be made by the Brewing Co., and the only thing that I can do is to specify the method of oiling and as I do not know how much oil mixed with the water would make it unsuitable for brewing purposes, the only thing I can know about it is that it is necessary that some oil should be supplied to make the bearings reasonably durable. The amount of oil used will depend somewhat on the attention given it, making the feeding constant and uniform and not intermittent.

If this matter is carefully attended to, using good oil, it is my opinion that the amount mixed with the water would be very limited, but whether it will injure the water in any sense, is a matter that I cannot undertake to decide and leave that for the Brewing Company.

**FILTERS.**—You can readily understand that oil is very easily filtered out of the water and the Company might adopt some simple method of extracting this oil from the water if necessary.

**OIL IN CITY WATER.**—You know more about this than I do, my experience being limited to 15 or twenty City and Village Waterworks. In every case that I have installed Centrifugal pumps that matter has been discussed and some people objected that the oil was injurious to the water, yet it is a fact that the quantity is such a homeopathic dose that I have never heard of [130] anyone being injured or refusing to use the water and personally do not believe that it is noticeable in use. But at the same time there may be instances where the oil would accumulate on top of the water and be seen and commented on. If the oil is detrimental it is barely possible that some kinds of oil may be less detrimental than others; for instance, sweet oil, cottonseed oil, or even castor oil, might be good for the health. But, laying all jokes aside, this matter must be decided now by the Pabst Brewing Co., and I shall insist on enough being used during the test of 90 days to protect the bearings from any undue wear.

**TEST.**—My test of the pump has been much of it devoted to investigating the necessary oiling, and I find the method I have adopted will only be sure to oil the top and bottom bearings. The intermediate bearings may not get oil except when the pump is idle because the water pressure in the bearings will exceed that in the oil pipe as you will note that all of the bearings connect with a common vertical

drill hole and this common vertical drill hole has a pressure about half that of the discharge pressure and this I apprehend will vary some as the bearings wear, thus making the durability of these bearings a question of experiment. Yet up to date none of our Series pumps have developed any undue wear in the center bearings. They only require attention and repairs after the end bearings have worn out. We have several two step pumps in City Water Works here in California that have been running about two years and I have heard no complaint, but always words of praise for them.

**EFFICIENCY.**—I herewith enclose a copy of some of the tests made. They are selected as representative of a great many tests that we have made and they show that the larger the quantity of [131] water the better the efficiency and you will note that we do not get much better efficiency than 50 per cent with the 700 gallons at the 200 ft. head and I think that these tests have demonstrated that with this special pump it would be better and more efficient to put in more than four steps, as is shown by the first test No. 1 and No. 2 in the table. No. 1 is intended to show the necessary speeds that five steps. No. 2 that six steps would use. No. 3 and 4 are the speeds necessary to do the work with four steps and No. 5 shows that the efficiency is improved when the quantity of water is increased and the head reduced, but at the same speed.

The above five tests were all made with a steam engine only and one bolt direct to pump. No. 6 was made to show the efficiency with a larger quantity of water and to see how near the engine

would check up with a dynamometer. No. 9 was made to see whether we could get any better efficiency if we put in six steps. No. 10 and 11 were made to see what the efficiency would be with a less quantity of water.

**GUARANTEE.**—You will note that in my guarantee I do not state it in efficiency. I simply guarantee the pump to pump 700 gallons if they supplied them, with 88 H-P delivered at the pulley and I think the tests show that if they have more water they will get a larger quantity without any addition in power. I also believe that in actual practice the efficiency will be better than shown in this test because we had to hold the end thrust with the thrust bearings; that undoubtedly consumed considerable power and is one reason why the efficiency shows better with the larger quantities and less head, while when the pump is vertical and pumping from a well the air is not so liable to interfere and the end thrust will be counterbalanced.

When the dynamometer pulley was used we were obliged to use two extra belts one of them crossed which interfered somewhat [132] with the accuracy of our test because of a tendency to slip and of course slipping always interferes with the efficiency shown.

**GENEVA PUMP.**—If they propose to install their own pump, why they can postpone the delivery any time to suit themselves, but if I am to install it I would like to do it while my man is over there, thus saving traveling expenses. We have got the patterns all complete and propose to make the pump anyway the same as we have done the Pabst pump



and test it. I think it is quite possible that we may improve on the next one, especially in efficiency. But even the efficiency as demonstrated I believe it will be practical and popular pump.

PATENTS.—You will note that I have designated this deep well as patented; that is because I have recently obtained a patent on our series pump that will apply to this pump, notwithstanding I propose to apply for other patents on it.

Yours very truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC. [133]

**Defendants' Exhibit "M-37."**

Office of

BYRON JACKSON MACHINE WORKS,

411 Market Street,

San Francisco, Cal., September 5th, 1903.

AGREEMENT between BYRON JACKSON of San Francisco, party of the first part and the PABST BREWING COMPANY of Milwaukee, Wisconsin, party of the second part.

WHEREAS, there has been correspondence between the parties hereto by letters and telegrams and contracts proposed by both parties for the manufacture and installing of a deep well Centrifugal pump, but not entirely satisfactory to both parties. During this correspondence the party of the first part has designed and manufactured a Series type four (4) step deep well Centrifugal pump and tested it and is now ready to ship and install same for the party of the second part at his Brewery in Mil-

waukee, Wisconsin. The following is a new agreement and specifications intended to cover this correspondence and including the drawings of the pump as finally completed as follows:

WELL.—Is guaranteed by the party of the second part to be about 15" diameter at any point in its full depth, thus permitting a Series Centrifugal pump, made not more than 14 inches outside diameter, to pass freely through the well casing. That one inch in clearance between the outside diameter of pump and inside diameter of casing, will be sufficient to provide for any imperfections of uneven diameter in the well casing. Also that the well shall be approximately straight permitting the ten (10") inch casing pipe connected with screwed couplings and pump to pass through its full length of 200 feet practically straight. [134]

PUMP.—To be of the Jackson patent Centrifugal Series type, four (4) or more steps, having a capacity of seven hundred (700) gallons per minute; revolutions not to exceed 1,400 per minute. The pump shaft to be encased in a four (4) inch pipe within the discharge pipe. Bearings approximately every ten (10) feet, and forming the couplings for the joints of the pipes and provided for oiling same by means of sight drop oil feed into and through two (2) wrought iron pipes one-quarter ( $\frac{1}{4}$ ") inch diameter, leading from top of well to pump, and distributing the oil to the several bearings of the pump by means of drill holes in the pump castings. The vertical shaft bearings to be oiled by means of a sight feed into the top of the four (4") inch pipe that supports the shaft bearings, the oil passing

through each bearing to the one below it, and may finally pass into the well at the half inch drain-pipe when the water in well is pumped below it; all as shown in drawings herewith submitted and marked 1. E. 72, and 3. E. 22, and are made part of these specifications. The total length from bottom of suction to discharge will be (at top of well) two hundred (200) feet. The pump to be suspended in the well by the discharge pipe attached to the cast iron pulley frame and discharge elbow.

**HORSE-POWER.**—The net water horse-power is estimated at forty (40). The horse-power to drive pump at the first coupling joining vertical shaft to the pump not to exceed 80 H-P. Horse-power required to drive the 200 feet of vertical shaft not to exceed eight (8) H-P, equaling 88 horse-power delivered by the belt to the driven pulley at the vertical pump shaft.

**FOUNDATIONS.**—The party of the second part agrees to make at his own expense, suitable foundations at top of well to support the pump and pulley frame in accordance with plans furnished by the party of the first part. The said second party also agrees to [135] furnish at his own expense a suitable derrick to place over the well at satisfactory height to raise each section of pump and pipe one over the other, each section not to exceed twenty (20) feet; requiring the top of the derrick to be, approximately, 40 feet high.

**TIME OF DELIVERY.**—The party of the first part agrees to make one more step to the already constructed four (4) step pump, and have it ready for shipment on receipt of this contract signed by

the party of the second part, and will send a competent man to Milwaukee to superintend the cutting, threading, and fitting of the discharge pipe and shaft for the pump, and will furnish all material required for the pump and shafting at his own expense, and install the pump in the well on the foundations at the PABST BREWERY in Milwaukee, as specified, on or before thirty (30) days from receipt of this contract signed by the party of the second part.

**COST OF TESTING PLANT.**—It is agreed by the parties to this contract that the party of the second part is to furnish the belt and power and furnish the lubricating oil and labor necessary to protect the bearings from undue wear, and all other labor necessary to operate the pump for ninety (90) days of successful run under the superintendence of a competent man furnished by the party of the first part, or such longer time as is necessary to demonstrate that the pump will do the work as specified.

**PAYMENT.**—The party of the second part agrees to pay for the above pump as specified Twenty-five Hundred (\$2,500.00) Dollars at the expiration of ninety (90) days' successful operation.

**GUARANTEE.**—The party of the first part guarantees the pump as specified, and to have capacity of 700 gallons per minute and [136] require no more than 88 horse-power delivered at the pulley on the top of the vertical pump shaft, and that the shaft bearings, couplings, pipe and pump will be made of the best material and workmanship for the purpose, and when pumping from 400 to 700 gallons per minute at 200 ft. head the shaft will be partially

and approximately balanced by the discharge pressure of water acting on the pump runners, and the unbalanced end thrust of shafting either up or down will be held in place by a suitable end thrust shaft bearing. And the party of the second part agrees to guarantee the party of the first part against loss caused by the well casing being less than 15" diameter or any other cause preventing the free passage of the pumps and pipes into the well, and will accept the plant as specified and pay the contract price when it has operated successfully ninety (90) days with reasonable wear and tear, unless it shall be satisfactorily demonstrated by the consulting engineer of the party of the second part, or by two engineers chosen respectively by the two parties hereto that failure in this respect shall have been caused by failure of supply of water in the well, the said two engineers to determine the method by which this demonstration shall be made. The cost of such demonstration to be paid by the party of the second part.

This contract is contingent upon freight delivery, strikes or other unavoidable delays.

The parties hereto subscribe their names and execute in duplicate.

(Signed) BYRON JACKSON,  
Party of the 1st Part.

Witness:

(Signed) B. H. AMES.

Witness:

\_\_\_\_\_. [137]  
Party of the 2d Part.

(Deposition of Daniel W. Mead.)

Q. Do you of your own knowledge know anything about the execution of this contract Exhibit "M-37," if it was executed by the Pabst Brewing Company?

A. I don't remember whether that was executed or not. I think it was, for your information, but I wouldn't say, because there was so much talk back and forth between the two that I don't remember the final form, although I think this is it.

Mr. LYON.—But whether there was still another draft you don't know? A. I don't know; no.

Q. What next transpired in this matter?

A. I wrote Jackson under date of September 8th for information concerning the results of his test, and the reply under date of September 12th. I have the original of his letter and a copy of my own in my files.

Q. These have been in your files since?

A. They have been.

Q. And one was received and the other written on the dates given? A. They were.

Q. This is the signature of Byron Jackson to the letter? A. It is.

The letter of September 8th produced by the witness was marked for identification Defendants' Exhibit "M-38," and the letter of September 12th so produced was marked for identification Defendants' Exhibit "M-39."

It is stipulated that the letter to the Byron Jackson Mfg. Co. under date of September 8th, 1903, marked Defendants' [138] Exhibit "M-38," and the letter in reply to Daniel W. Mead dated September 12th, 1903, marked Defendants' Exhibit "M-39"

may be received in evidence and copied in the record as follows:

**Defendants' Exhibit "M-38."**

Chicago, Ill., Sept. 8, 1903.

Byron Jackson Mfg. Co.,  
San Francisco, Cal.

Sirs:

You will please advise us concerning the Pabst and Lake Geneva pumps. You agreed to let me know the results of your tests some weeks ago, but I have heard nothing from you except that the preliminary tests were satisfactory. You have never sent me the form of contract for the Lake Geneva pump which I wish to have satisfactory before pump is shipped.

Very truly,

**Defendants' Exhibit "M-39."**

San Francisco, Cal., Sept. 13, 1903.

Mr. Daniel W. Mead,  
Chicago, Ill.

Dear Sir:

Beg to acknowledge receipt of yours of Sept. 8th in which you call my attention to my short comings. I plead guilty but at the same time you know all about it now as I wrote you about my troubles both with the Pabst pump and the Fort Worth pumps. As to the contract for the Lake Geneva pump, [139] I did not know whether to make the contract to be delivered and installed or to be shipped there f. o. b. and in as much as they had asked us to delay the delivery and I had agreed to delay it

(Deposition of Daniel W. Mead.)

any time to suit them, I concluded it was just as well to let it stand for the present until we decided what we would do in regard to the Pabst pump.

Regarding the Pabst pump, I see nothing to interfere with our going ahead and installing them except the matter of the oil injuring the water for their use and I left that question with them to decide because I could not make the kind of a guarantee they asked for; I am a thorough believer that journals must have a little oil and if that spoils the water for brewing, that I thought would cancel the contract, otherwise I expect to see the contract returned; In the meantime we would make the other step to the pump, as I suggested and be all ready to ship it on receipt of the returned contract and if this contract would be satisfactory it would be about the thing with a little modification for the Geneva pump.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC.

Q. What next occurred, if anything, in this matter, please?

A. The next that occurs in my files is a letter from Byron Jackson dated September 28th, stating the date on which certain pumps would be shipped to me at Ft. Worth, Texas, and containing a comment on the Pabst Brewing company's deep well pump, stating it was finished in five steps, etc. It is an answer to a letter that I had written to him concerning the Ft. Worth pump, which I thought I



(Deposition of Daniel W. Mead.)

had in the Ft. Worth file. It is information [140] concerning the Pabst pump, but simply gratuitously thrown in in a letter concerning the Ft. Worth pump.

Q. When did you receive this letter?

A. I received it about September 28th.

Q. And it has been where since?

A. It has been in my files ever since.

Q. And whose signature is it?

A. Byron Jackson's signature.

The letter last identified to by the witness marked for identification Defendants' Exhibit "M-40."

It is stipulated that the letter from Byron Jackson under date of September 28, 1903, marked Defendants' Exhibit "M-40" may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-40."**

San Francisco, Cal., Sept. 28, 1903.

Mr. Daniel W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

Beg to acknowledge receipt of yours of Sept. 24th. We hope to ship the two new pump cases for Fort Worth in about ten days. They have been successfully cast and are now at work milling them.

I hope that there is something wrong with your data regarding the efficiency of the pumps, the same as there was [141] at Rockford, as you remember the first report I got from there, before I arrived at Rockford, the efficiency was less than

(Deposition of Daniel W. Mead.)

40 per cent and of course our best efficiency there was with the larger quantities of water and I see by your letter you expect to increase the quantity of water at Fort Worth. These Fort Worth pumps are practically the same as the Rockford except that they are two in series and should produce the same efficiency in my judgment.

The Pabst Brewing company deep well pump is finished in five steps including the shaft, couplings and boxes and is waiting the return of the contract from the Pabst Brewing company. I thought best to send this contract to you direct rather than to the company and I would like to know if they have yet received it and what is their decision and why the delay.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ-JAC.

Q. What next occurred?

A. The next is a letter from Byron Jackson to me dated October 7th, 1903, and enclosing a letter-press copy of a letter of Jackson to Pabst, in which he states he had signed the contract and approving the insertion of certain words which they had added to the contract he had submitted.

Mr. LYON.—Is the other letter-press copy of the letter of Jackson to Pabst dated October 7th?

A. Yes, both of October 7th.

Q. This letter of October 7th, 1903, was received by you when? A. About October 10th. [142]

Q. And it has been where since?

(Deposition of Daniel W. Mead.)

A. In my files since.

Q. This is the signature of Byron Jackson?

A. It is.

The letter of October 7th, 1903, identified by the witness, was marked for identification Defendants' Exhibit "M-41," and the letter-press copy so identified by witness was marked for identification Defendants' Exhibit "M-42."

It is stipulated that the letters above referred to marked respectively Defendants' Exhibit "M-41" and "M-42" may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-41."**

San Francisco, Oct. 7th, 1903.

Mr. D. W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:

Enclosed I hand you press copy of a letter I am sending to Pabst Brewing company which explains that we have signed up the contract and are shipping the pump less pipe and shafting.

I am not sending any pulley because it has not yet been determined whether it is to be rope pulley or belt pulley. I expect the speed to be something less than 1200 and recommend a 12" diameter pulley about 18" face and 14" 5-ply rubber belt. [143]

The man that I am sending is at present on the sick list but not seriously so. He is a good worker and capable of installing this plant properly but I have never counted him a success as a diplomat and

yet I trust that there will be no occasion for diplomacy in this matter or expert work in testing as I believe the efficiency of the pump will be considerably better than that named in the contract and I don't apprehend any difficult problem except the oiling but that will depend on the amount of oil that the company will consider satisfactory or objectionable. Yet I should recommend however a free use of oil in the start and then after it has proved to be running successfully with oil, then the oil may be cut down to a limited supply so that it will not injure the water for their use but I very strongly recommend a liberal supply at first as you may understand, the pipes that convey the oil have got to have a surplus there to get the oil started and after they are once lubricated and worn a little free then I think there will be no danger of damage to the bearings even if the oil supply is limited.

I sincerely hope that the job will go through without the necessity of my presence yet I am contemplating an eastern trip and if I can manage the time to see this start I will endeavor to do so.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/LEW.

**Defendants' Exhibit "M-42."**

Oct. 7, 1903. [144]

Mess. Pabst Brewing Co.,  
Milwaukee, Wis.

Gentlemen:

Beg to acknowledge receipt of yours of Sept. 25th, enclosing our contract for installing deep well

pump, signed by your vice president, Mr. G. G. Pabst. Your insertion of the word "longer" on page three is satisfactory, as I really do not want the time of completion of this contract to be the essence of the contract. It is such a long distance that it really seems impossible to make estimate of time exactly. At present I am disappointed in having a competent and suitable man to install this plant. I had a leading employee at the Works who has recently left my employ to go to his home in Michigan, and I had an arrangement with him to install this plant when it was shipped there, but he wires, in answer to our wire, that it is impossible for him to do so now. Two men in my employ who are competent, are on the sick list and I doubt whether they will be able to undertake the job; two other men in my employ who are competent to do the work are both engaged in work that they cannot leave.

At this writing however I am in hopes that one of the men on the sick list will be able to do the work and if not, I shall have to send a stranger or employ a man in your town to do the work according to plans sent to him. It however is a very plain piece of work so that I hope to have it installed on the time specified, thirty days from date.

We are shipping the pump today and are expressing one shaft coupling and two shaft bearings to be used in fitting [145] the threads, hoping to have the pipe, shafting and pulleys completed there in Milwaukee before the arrival of the pump. If I do not secure a man to send there in the next day or two, will send plans and specifications to

(Deposition of Daniel W. Mead.)

you in hopes that you can select a man in your town that can do the work in advance for us.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC.

P. S.—Since writing the above I have received a telephone message from our Mr. Robb who is on the sick list saying that he will be able to undertake this work in a day or two. So that I hope he will arrive in Milwaukee some time the first of next week and will be able to get the pipe and shafting and everything ready to receive the pump by the time it arrives.

Q. This copy of the letter of October 7th, 1903, to the Pabst Brewing company, signed by Byron Jackson, was made by whom?

A. Why, it was a copy that Mr. Jackson enclosed in his letter of October 7th to me.

Q. Yes, I see the reference to it in the letter. And this has been in your files since? A. It has.

Q. Is there any further letters to produce in this matter?

A. Well, I have here a letter from Milwaukee, written by Mr. H. Robb, who was erecting engineer for the Byron Jackson Machine Works, in which he notified me that the pumps contracted [146] for by the Pabst Brewing company was running, pumping water 175 feet, quantity of water 800 gallons.

Q. And when did you receive this letter?

A. I received it about January 13th, 1904.

(Deposition of Daniel W. Mead.)

Q. And it is signed by whom? A. H. Robb.

Q. Where has the letter been since?

A. In my files.

Said letter so identified by the witness was marked for identification Defendants' Exhibit "M-43."

It is stipulated that the letter above last referred to marked Defendants' Exhibit "M-43" may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-43."**

Milwaukee, Jan. 12, 1904.

Mr. D. W. Mead,  
National Bank Building,  
Chicago.

Dear Sir:

The pump contracted for by the Pabst Brewing company is now running pumping water 175 ft. quantity of water 800 gallons.

Yours truly,

H. ROBB.

At the hour of 5:55 P. M. the examination was adjourned to 9:30 A. M. at the same place. [147]

February 10, 1920, 9:30 A. M.

Examination resumed.

Direct examination of the witness resumed by Mr. Blakeslee.

Q. You have produced a copy of letter dated April 29th, 1903, addressed to yourself and signed Byron Jackson Machine Works by Byron Jackson. When was that copy made?

(Deposition of Daniel W. Mead.)

Mr. LYON.—What is it?

A. This is a letter received early in May, 1903, from Byron Jackson Machine Works in San Francisco, concerning various features of the pumps to be furnished for the Pabst Brewing company, and discussing I think the questions of the contract that had not yet been settled.

Q. And this has been in your files ever since?

A. It has, ever since.

Q. And received by you in due course of mails?

A. It was.

Mr. BLAKESLEE.—Witness has just referred to Defendants' Exhibit "M-44."

Q. Similarly I show you a letter dated May 11th, 1903, a copy thereof, addressed to the Byron Jackson Machine Works. What have you to say as to that?

A. This is a letter written to the Byron Jackson Machine Works by myself and which has been in my files ever since. It was sent in due course of mail.

Q. And on that date? A. On that date.

Mr. BLAKESLEE.—Witness has just referred to Defendants' Exhibit "M-45."

Q. Similarly I show you what purports to be a letter from Byron [148] Jackson Machine Works dated July 7, 1903, and addressed to Daniel W. Mead. Please state similarly as to that.

A. This is a letter received by me from the Byron Jackson Machine Works, about July 9th or 10th, 1903, and received in due course of business; been in my files ever since.



(Deposition of Daniel W. Mead.)

Witness has just referred to Defendants' Exhibit "M-46."

Q. Similarly I show you a purported copy dated January 14th, 1904, addressed to H. Robb, Superintendent. What have you to say as to this paper?

A. It is a letter written by me on January 14th, 1904, to Mr. Robb, Superintendent of the Byron Jackson Machine Works, who had been erecting a pump at the Pabst Brewing Company; sent by me on the date named, in due course of mail.

Q. It has been in your files since?

A. It has been in my files ever since.

Witness has just referred to copy of letter marked Defendants' Exhibit "M-47."

Q. Similarly I show you what purports to be a copy of letter dated January 16th, 1904, addressed to Byron Jackson Machine Works and ask you to similarly state regarding same.

A. This is a letter written by myself to Byron Jackson Machine Works under date of January 16th, 1904, and mailed on that date, which has been in my files ever since.

Witness has referred to Defendants' Exhibit "M-48" so marked.

Q. Similarly I show you a letter dated January 20th, 1904, addressed to Daniel W. Mead, signed by the Byron Jackson Machine Works, and will ask you to state similarly in regard to same. [149]

A. This is a letter received about January 24th, 1904, from Mr. Jackson of the Byron Jackson Machine Works, whose name is added to the type-written signature of the Byron Jackson Machine

(Deposition of Daniel W. Mead.)

Works, received by me in due course of business, been in my files ever since.

Witness has referred to letter marked Defendants' Exhibit "M-49."

Q. Similarly I show you a letter addressed to Mr. D. W. Mead, signed Byron Jackson Machine Works by Byron Jackson, dated February 20th, 1904, and ask you to similarly state regarding same.

A. This is a letter received about February 23d or 24th in due course of business from Byron Jackson Machine Works and it has been in my files ever since.

Witness has just referred to letter marked Defendants' Exhibit "M-50."

Q. Similarly I show you a letter dated March 1st, 1904, and addressed to Mr. D. W. Mead and signed Byron Jackson Machine Works, per Byron Jackson, attached to which is a copy of letter dated February 25th, 1904, and addressed to Mr. Byron Jackson, signed by G. G. Pabst, President, and will ask you to state similarly as to each of these letters.

A. This letter dated March 1st, 1904, is a letter received by me early in March from the Byron Jackson Machine Works and included what was stated in the letter to be a copy of the letter received by Mr. Jackson from Mr. G. G. Pabst, president of the Pabst Brewing Company. The letter was received in due course of business and has been in my files ever since, together with the copy of the Pabst letter attached. [150]

Witness has just referred to letter of Byron Jackson Machine Works marked Defendants' Exhibit

(Deposition of Daniel W. Mead.)

"M-51," and attached copy of letter from G. G. Pabst, president, marked Defendants' "M-52."

Q. Similarly I show you a letter directed to Mr. D. W. Mead dated March 25th, 1904, and signed Byron Jackson Machine Works, per Byron Jackson, and ask you to state as to the same.

This is a letter received about March 26th from Byron Jackson Machine Works, in due course of business. It has been in my files ever since that date.

Witness referred to letter marked Defendants' Exhibit "M-53."

Q. I show you now a group of miscellaneous papers, appearing on their face to be telegrams, copies of letters and letters, between Daniel W. Mead and Byron Jackson Machine Works, dated on several divers dates, and marked respectively Defendants' Exhibits "M-54" to "M-66," inclusive, and will ask you to inspect this group of papers and state whether they are true and correct originals or copies of the correspondence which they purport to be and had at that time, and were transmitted and received by you approximately upon the several dates given and have been in your files since.

A. They are.

Q. And the signatures appearing are known to you, are they? A. They are.

Mr. LYON.—And those which are without signatures, the originals were signed by you and deposited in the mail on or about the dates they bear?

A. They were. [151]

Q. And is that also true with respect to these

(Deposition of Daniel W. Mead.)

other letters that you have identified, where they were missing in signatures, and you have testified that they were letters that you sent?

A. It is. [152]

Letters, documents and papers identified by the witness this morning and referred to as Defendants' Exhibits "M-44" to "M-66," inclusive, are offered and received in evidence as so identified by such letter and number respectively and are copied in the record by stipulation as follows:

**Defendants' Exhibit "M-44."**

COPY.

San Francisco, Cal., Apr. 29th, 1903.

Mr. Daniel W. Mead,

First National Bank Bldg.,

Chicago, Ill.

Dear Sir:

Beg to acknowledge receipt of yours of Apr. 23d, in which I note that you are surprised at the price of \$1,500.00 for the Geneva pump. I presume that you have my letter of explanation that I was not very anxious to have two of these experimental jobs on hand at one time, preferring to have one made and tested before undertaking another. This, of course, had something to do with fixing the price high enough to make it interesting and attractive to me as well as the purchaser.

My price, however, did not include installing, but only included delivery at Geneva; but, of course, it has to include the price of designing, drawings, pattern-making and experimenting, and I feel that the

Pabst Brewing Co.'s contract is quite sufficient for me to undertake as an experiment; but I suppose I could make one as quick as the other if I was to undertake it, yet I would rather not undertake but one at a time until it has been demonstrated. [153]

**PABST BREWING CO.'S PUMP.**—I had hoped to send you the drawings of this pump Saturday, the 25th, but have just this moment received them in the office and hasten to submit them to you, because I think it necessary first to be sure that the well casing will receive this pump, and I think the only way to be sure is to put a dummy pump down the well. This dummy would be made of wood and fastened to a set of well-boring tools and put down the well the 220 ft.

You have no doubt received the contract that I sent you a week ago yesterday, which specifies that the company is to guarantee the well to permit the pump to pass freely through the well casing, and in that specification I named the diameter as  $14\frac{1}{2}$ ", and I made the drawing first that diameter, but afterwards concluded that the imperfections of the well casing could scarcely permit a  $14\frac{1}{2}$ " diameter, and so have made the drawings 14" diameter and marked it so on this drawing I am submitting to-day; but because of it being necessary to make this small enough to go in past the imperfections of the well, I think it advisable to make the patterns so I can reduce the diameter if necessary when I hear from you by wire as to the exact diameter your company will guarantee to pass freely through the well pipe.

**DRAWINGS.**—I think these drawings are suffi-

ciently plain to hardly need further specifications to make you understand them. The pump drawing and the pump head are both made on the scale of 3" to the foot, and are made partially in sections, enough I think to make it clear to you what we propose to do. Some features of this pump are already patented and others that are new I propose to patent if the experiment proves successful. So I trust you will treat these drawings as confidential. [154]

In making these drawings, I first laid out the pump full size, and then made a model of the runner and veins, but after completing the drawings, have decided to make some changes in the proportions, and therefore have only put on a few figures, aiming to guide you in determining whether the well will receive the pump freely through its entire length. The broken section of the pipe, shafting and bearings just above the pump represents one full section just as we propose to make it, and it is also shown in the smaller scale without being broken, and there would be ten sections like this.

You will note that the shafting is inclosed in a 4" pipe and intended to be water and oil tight, and the oil fed in at the top, letting it find its way through each bearing and down the pipe to the pump, where there is arranged suitable drain pipes to permit the water to drain out of the pipe what leaks through the last bearing of the pump where the waste oil will also get out and be pumped through the water, which I presume some people will object to, but, as you know, it is a very homeopathic quantity and does no harm.

**DISCHARGE HEAD AND PULLEY FRAME.**

I did not think it necessary to show this in sections. Will say, however, that the pump shaft and 4" pipe is made water tight in which the discharge ell and both bearings above and below the pulley are separate, castings turned, bored, finished and babbitted and made removable for the purpose of repair, and are held in place by the bolts as shown. The lower bearing is oiled from the side with a large can and pipe which oils the shafting the whole length. The top bearing is provided with ball thrust bearings to carry the weight of the shaft when commencing to pump, and the shaft is intended to be automatically balanced. [155]

I specified in the specifications that it would be approximately balanced, but after making the drawing I believe it will float by the pressure of the discharge water and have no end thrust at all.

**OILING PUMP BEARINGS.**—This is the only feature that I have not worked out to my entire satisfaction. I have thought of making a hollow shaft through the pump and feeding the oil to it by pipe leading from the top, but the difficulty of feeding the oil into a hollow shaft revolving with water leaking through the bearings is not entirely a certain method of oiling against pressure. The only certain way that I have thought of so far, is to make the pump small enough in diameter to permit of an oil pipe passing between the pump and well casing, and if this method of oiling is adopted, the pump has to be that much smaller in diameter.

Another method would be to make the bearings of a combination of brass or babbitt and graphite, and trust to this being satisfactory without any oiling.

**INFORMATION WANTED:**—First, the largest diameter the pump can be made and pass freely through the well casing. Second: Will the Pabst Brewing Co. accept either of the methods suggested for oiling and not reject the pump on account of excessive wear of the bearings, all other parts of the pump being satisfactory as specified?

The reason I want the Pabst Co. to assume this risk of excessive wear to the bearings for the want of oil is because the sum of \$2500.00 is a larger sum than I care to risk on the oiling proposition, because much depends on the attendant who has charge of the pump as well as whether the water is clear or full of sand and grit. [156]

Understand that I am going ahead with the patterns and the manufacture of this pump regardless of whether the Pabst Co. will accept the responsibility of the successful working of these bearings but I might not ship it and install it unless they will accept the pump regardless of the reasonable durability of these bearings.

Hoping to hear from you and the company promptly, we are,

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

**Defendants' Exhibit "M-45."**

May 11th, 1903.

Byron Jackson Machine Works,  
San Francisco, Cal.

Gentlemen:

Your various favors of recent date are duly received.



Yours of the 29th, ult. was forwarded to me at Danville, Illinois, from which place I returned Saturday night and found your favor of May 5th at hand.

The contracts were duly sent to the Pabst Brewing Company, but I have heard nothing from them as yet. Presume they have communicated directly with you concerning this matter.

I have today sent them your letters and drawings asking them to have the dummy pump put in the well and to wire you at the earliest possible moment the maximum size of the casing.

Have also written to Geneva Water & Light Company in regard to the Geneva pump. I found on getting further details [157] that the Hart bid was not complete. I have advised these people to accept your proposition, and rather expect they will do so.

Yours very truly.

**Defendants' Exhibit "M-46."**

San Francisco, Cal., July 7, 1903.

Mr. Daniel W. Mead,

Chicago, Ill.

Dear Sir:

**SPECIAL GENEVA PUMP:**—I intended the drawing of this pump to show all the details and was under the impression that it did. They will be the same, however, as the Pabst pump which I think we sent you a complete detail of, showing the oiling device complete, the bearings, however, are plain solid babbitt bearings, the oil in the pump bearings being led to them from the top by a pipe while the

shaft bearings are oiled simply by the waste oil dropping from one bearing to another inside of the 4" pipe. I will make up a contract and submit it to you.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/PL. [158]

**Defendants' Exhibit "M-47."**

Jan. 14th, 1904.

Mr. H. Robb, Supt.,

Byron Jackson Machine Works,

Milwaukee, Wis.

Dear Sir:

Your favor of Jan. 12th, was duly received.

I am very pleased to hear of the success of the pump you have installed for the Pabst Brewing Co., and trust you will keep me advised as to how the plant is running.

Yours very truly,

**Defendants' Exhibit "M-48."**

Jan. 16th, 1904.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

I recently received a letter from your Mr. Robb, from Milwaukee, saying that the pump installed is raising 800 gallons a minute 175 feet high, and is apparently satisfactory to all concerned. Also heard from Mr. Gray, the well driller who sank the well, and who was in Milwaukee last week. He called at my office during my absence, and said the

pump was working very nicely.

In view of this matter, it is very desirable that I know at the earliest possible moment what you expect to do in [159] regard to the pump for the Lake Geneva Water & Light Company. They must have a pump installed before the dry weather comes on. You agreed some time ago to send a form of contract, and, as I wrote you, they wish included in that contract a guarantee on your part against infringement. If you are prepared to go ahead with this, would like the contract signed as early as possible; otherwise the Company will insist on making some other arrangements, as they cannot run the risk of another dry season without reinforcing the supply.

Some days ago I was telling the Engineering News representative of the Pabst plant, and he is anxious to describe it, and to publish a cut of the same. I told him this could not be done, at least as far as the cut was concerned, without your consent. Have you a photograph of this pump, and are you so protected by patents that you could permit them to publish a sectional view.

I believe the success of the Pabst pump will mean a great deal of work for you in this line through this territory, and having the matter well written up by the Engineering News will be the best of advertisement, so it should not be neglected, provided you are sufficiently protected. Of course, I will not allow the use of any prints to the Engineering News or to others without your sanction.

Please let me hear from you as early as possible.

Yours very truly, [160]

**Defendants' Exhibit "M-49."**

San Francisco, Jan. 20, 1904.

Mr. Daniel W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:—

Beg to acknowledge receipt of yours of Jan. 16th relative to the Lake Geneva Water & Light Company's pump and also the favorable report regarding the Pabst pump, but will take this occasion to say however that we tested the Pabst pump and expected good results. The only question that still remains is as to the durability, which Mr. Robb says the company has practically taken off of my hands in this way; "That they propose to run without oiling after they have connected up to their pipe mains and assume the responsibility of wear and tear because of neglect of oil."

I am sure however that if the bearings are reasonably oiled that it will be durable but whether it will run without oil I think is questionable, but perhaps even this wear and tear would not be prohibitive in the Brewing Company's conditions because it only means a new shaft and rebabbitting the bearings, which of course is a considerable trouble because of having to take the plant out and take it down and set it up again. But otherwise I am sure this outfit is a practical and satisfactory pump.

Mr. Robb has sent me a card taken from the engine Jan. 15th. The data is as follows:—

Pump speed.....1210

Jackson Weir Card,...756 Gallons. 3x48" Weir.

167 Ft. elevation.

Engine speed.....160 Revolutions.

50 lbs. Spring.

Engine 15-1/8x24".

Horse power 52.8.

I have not figured or checked the above figures and do not know who the author is. But if correct certainly the power is not so great as I expected but at the same time I expected good deal better results than our ship test because the shaft exactly floats on the column of water while we had to hold the end thrust with collars.

**ENGINEERING NEWS:**—Regarding a write up in this paper I fully appreciate the advantage of advertising indeed but hardly think it advisable to have a write up just now because for one thing we are having at present a write up on the regular series pump in the Engineering News and next I have some patents pending on this deep well pump.

It is true that I have the series vertical pump patent which I think covers the main features of this pump, but, at the same time, there are other features in this new design patentable which are pending just now.

**GENEVA PUMP:**—As I told you before we had the patterns finished but had deferred the making of it until this pump was tested as to the developments in this pump for showing the desirability of a few changes in the patterns but they don't take much time and I will therefore go forward with this pump and make it at once and will take the first opportunity in the very near future to send you a contract but it will be practically on the lines of

the Pabst contract, regarding oiling and patent infringement. [162]

Of course I will defend all suits that are brought against me for infringements of patents but not any suits that may be brought against the water company or the Pabst Company but I will say however that I have already investigated the state of the art and I don't know of any possible infringement, if I did I would not be making it, but, at the same time, I don't see money enough in it for me to undertake to defend the Water Company against any patent suits on the other side of the Rocky Mountains.

It is possible I may get this pump done in time for Mr. Robb to install it while he is over there, yet at this writing I have not refreshed my memory regarding our correspondence and I do not remember whether they expected me to install it or whether they intend to install it themselves. Besides Mr. Robb says that he does not see any necessity of his remaining in Milwaukee the remainder of the 90 days as he has apparently nothing to do with the running of it. I would like to ask you if you think it necessary or advisable for me to keep Mr. Robb there until the end of the 90 days.

It occurs to me that so long as they waive the durability clause, and if they do that in writing they might as well accept the pump, what do you think?

DITCHING DREDGER.—I have been exceedingly busy all this summer and fall designing and building a brand new ditching dredger and in addition I have had to do the expert designing in

the drafting room, because as I told you, Mr. Vandegrift was nearly dead with the consumption and soon after my return from the east he died and it is not an easy job to get a new man to fill his place, so [163] I am doing it now just as I was when Perry was there and should you know of some young man capable to fill this place that wants it I would like to correspond with him.

This dredger that I referred to above is intended to excavate 200 cubic yards per hour and discharge it on the banks of the levee 150 ft. between centers and excavates a canal 20 ft. deep and 30 ft. on the bottom and 60 ft. or more on the top.

The pump is a 12" dredging pump, the suction and discharge are 12" pipes, the discharge leading to a Y on the top of the barge and there branched off into two 10" pipes, each pipe discharges half of the discharge of the pump on these levees, where the earth is retained or held in place by jetties, I don't know a better name but they are simply made of boards 15" or 20" wide with three stakes nailed to it and braced with a stick like a figure four so that it is only necessary to drop these boards on the levee to check the flow of water and thus a levee can be built up with a slope of nearly one to one, at least in the kind of sandy soil that we are at present operating in.

FORT WORTH PUMPS:—How about Ft. Worth we are needing some money and would be pleased to hear from you.

Yours truly,

BYRON JACKSON MACHINE WORKS,

Per BYRON JACKSON.

BJ/LEW. [164]

**Defendants' Exhibit "M-50."**

San Francisco, Feb. 20, 1904.

Mr. D. W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:—

Answering yours of Feb. 15th, please don't delay paying the balance any longer than you have to, as money would be very handy just now.

GENEVA PUMP:—Has anything occurred to change their minds regarding this pump; If so what is it? The only trouble that Mr. Robb reports is the question of oiling. The Pabst Co., have neglected to oil even the top bearing next to the pulley and that has given some trouble because of wear.

Yours truly,

BYRON JACKSON MACHINE WORKS.  
Per BYRON JACKSON.

BJ/JAC.

**Defendants' Exhibit "M-51."**

San Francisco, Mar. 1, 1904.

Mr. D. W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:—

Replying yours of Feb. 22nd, I enclose herewith copy of a letter from the Pabst Brewing Co. which you will see will indicates that they propose to accept the pump and order some [165] more like it. From the reports that I have from Mr. Robb regarding the difficulty of wearing of the upper bear-



ing, that required some repairs, was certainly no fault of the pump or its design; The lower bearings were not oiled at all, which from my stand-point it was not reasonable to expect that the lower bearing would stand the wear and tear without some kind of lubrication, besides, it is a simple matter to provide grease for this upper bearing and not let it get into the water;

I expect to improve the next pump so that the end thrust will be less than on this; In fact I am a little disappointed that there is any weight at all on these ball bearings, except when starting the plant. The last report from Mr. Robb, is that the new bearings have run considerable time without showing any wear.

I have been holding the Lake Geneva Water Co's. pump back in order to get a full report from this plant; But the reports so far are favorable and I have every reason to believe that this new pump will be a success, yet I do not desire to push it on the market until we have had sufficient experience with it to be reasonably sure of the results after placing it in the hands of unexperienced people. I do not favor pushing new machinery into the market and depending only on shop tests or expert work, but desire to have it thoroughly tested in the hands of the average user.

So I am perfectly content to cancel the Lake Geneva Water Co's. order, or accept it on most any conditions that they want, with the exception of the patent clause and the necessity of oiling, because I am not a believer of water lubrication, although it answers to a certain extent; I do not believe either

that a little oil can be so very objectionable for water. Of [166] course in the Pabst Brewing Co's. case it may be absolutely prohibitive, but for City Water Works, it has been demonstrated thoroughly that a little oil will do no harm; The objection is purely an imaginary quantity. Besides, we are scheming on devices that we think we will be able to oil this shaft without permitting it to get into the water that is pumped by it.

PATENTS:—I do not consider it good business to undertake to protect other Companies or your customers from patent suits that may be filed against them for the use of your machinery. I am perfectly willing to stand any suit that is filed against me, because I do not infringe anybody's patents that I know of, but there may be suits filed against our customers for many reasons and make us annoyance and cost and bother and I shall have to decline to do so under any conditions and never have had to do it to secure an order. Besides I am getting a little more independent than I used to be in this matter and I make my own contracts and if the purchaser wants anything in it that I don't like, I let them go elsewhere to get their goods. We certainly have a good patent on our Series pump and the new devices that are on this pump are certainly mine and I am not afraid of infringing anybody; I think that the Pabst letter shows that they have every confidence in this pump and Mr. Robb's letters are to the same effect.

I hope that you will communicate to the Lake

Geneva Water Co., some of the statements above.

Very truly yours,

BYRON JACKSON MACHINE WORKS,

Per BYRON JACKSON.

BJ/JAC. [167]

**Defendants' Exhibit "M-52."**

COPY.

Milwaukee, Wis., Feb. 25th, 1904.

Mr. Byron Jackson,

San Francisco, Cal.

Dear Sir:—

Your Mr. Robb was in the office today with a supplemental agreement which he asked me to sign. While there is no question in my mind at the present time that the pump will be accepted by us, I really do not wish to sign the paper without first talking the matter over with you. You no doubt will recall our correspondence previous to closing the contract with you and that we offered to pay the expenses of your man to come to Milwaukee to erect and superintend the operation of the pump, and that this amount was added to the original price made us by you. For that reason we hardly think your position is perfectly just one to have your Mr. Robb return before the expiration of the time specified. With no further explanation from you that seems to be the object of your supplemental agreement.

I realize that we have released you from your guarantees by lubricating the wearing parts with water but we are pleased to say that the test so far has come out all right.

I have asked your Mr. Robb to get measurements and data of our wells with a view of equipping them with your Centrifugal pumps while we are waiting for a reply from you. We have three or four wells all supposed to be of the same diameter as the one for which you furnished the pump and we would thank you to give us your lowest price apiece for three or four more pumps. [168]

As the pump has been running very well the past few days we believe it would be safe for your Mr. Robb to return home, as I have no doubt you can make use of his services.

Awaiting an early and favorable reply,

Yours very truly,

(Signed) G. G. PABST,

President.

**Defendants' Exhibit "M-53."**

San Francisco, Mar. 25, 1904.

Mr. D. W. Mead,

1st National Bank Bldg.,

Chicago, Ill.

Dear Sir:—

I have just received telegrams from our Mr. Robb at Milwaukee, saying that the Pabst Brewing Co. have accepted the pump and handed him check for and also placed an order for three more similar pumps. I hope there is no mistake in this, because if true, it is a pretty good indication for the new pump, notwithstanding we have had some troubles there. We have had no troubles however, other than what might be expected under the conditions and certainly the pump is more durable without using

oil, than I expected, if I understand Mr. Robb's reports.

Please make it convenient to send us some money as we are hard up and could use it now to advantage. Please let us hear *from* you are getting along with the pumps at Fort Worth.

GENEVA PUMPS:—I am not so anxious for this order, because I want to go slow on these pumps until I know I am right. If you [169] see fit to tell them that the Pabst Company have accepted the present one and ordered three more, it might set them to thinking and do me no harm surely, and I would be under many obligations to you for it.

Yours very truly,

BYRON JACKSON MACHINE WORKS,

Per BYRON JACKSON.

BJ/JAC.

**Defendants' Exhibit "M-54."**

(TELEGRAM)

MI. . . . Sanfrancisco Calif Apl 18-03.

D. W. Mead,

First Natl. Bank Bldg.,

Chicago.

Geneva pump fifteen hundred dollars delivered sixty days to succeed to abandon before shipment.

BYRON JACKSON MACHINE WORKS,

1006pm.

**Defendants' Exhibit "M-55."**

Feb. 22nd, 1904.

Byron Jackson Machine Works,  
San Francisco, Cal.

Gentlemen:—

Concerning the pump for the Lake Geneva Water & Light Company, I wish to say that Mr. W. E. Hinchliff of Rockford, Ill., who represents the principal owners in this plant, writes me that he has visited Milwaukee and seen the Pabst pump in operation. He says that he is not satisfied that the mechanism [170] will stand up under the work, with reasonable expense. He states that some of the bearings at Milwaukee have already been renewed because of the crushing of the balls, or something of that kind. He also says, in regard to the matter of possible patent litigation, "We have been warned regarding infringement, and after such warning a suit might go hard with us, if it developed that there was an infringement."

In view of the above, and especially the clause in regard to infringement which you refuse to incorporate in the contract, it is apparent to me that a satisfactory contract cannot be drawn between yourselves and the Lake Geneva Water & Light Company. I should, therefore, advise an entire discontinuation of further work on this pump, unless you are willing to insure this Company against the question of patent litigation, and unless the mechanical defects, concerning which Mr. Hinchliff writes, can be remedied.

Yours very truly,

**Defendants' Exhibit "M-56."**

April 14th, 1903.

Byron Jackson Machine Works,  
San Francisco, Cal.

Gentlemen:—

I visited Lake Geneva, Wisconsin, yesterday in the interest of the Lake Geneva Water & Light Company. This Company has an artesian well 12 inches inside diameter. The water stands about 60 ft. below the surface, and is expected to fall to a depth of about 100 ft. below the surface when pumping [171] at the rate of 700 gallons per minute.

This Company desires figures, for immediate delivery, on a centrifugal pump to go in this well, of a capacity sufficient to raise 700 gallons per minute from a depth of 100 ft., including necessary drop pipe, power head and pulley (for use with the steam engine), bearings, etc., to place the pump 100 ft. below the surface, and a suction pipe at least 20 ft. longer to bring the total down to 120 ft.

It is important that this work be completed at the earliest possible moment, in order to prepare for the excessive demand for water during the hot weather, and the Company desire me to ask you, on receipt of this, to immediately wire me a price on the delivery of this pump at Lake Geneva, Wis., and the earliest time at which you will guarantee to ship the same.

As the matter is exceedingly important to the Company, I shall feel greatly obliged if you will give this matter immediate attention,

Yours very truly,

**Defendants' Exhibit "M-57."**

April 23rd, 1903.

Byron Jackson Machine Works,  
San Francisco, Cal.

Gentlemen:—

Your dispatch of the 18th, inst., reading "Geneva pump \$1500.00, delivered sixty days, to succeed or abandon before shipment" was duly received.

I was somewhat surprised at the price named, as I had [172] supposed from the figures you named me when I was in San Francisco last May that a pump of this sort could be built for something less than \$1000.00, and had given the Geneva people to understand as much. Does the price named contemplate your delivering and erecting this pump, and did I make it plain that the lift was to be only 100 feet? I am anxious to see you put this pump in at Geneva because I am satisfied you will do us a first-class job, but would like to hear from you as to just what your proposition contemplates.

We have a considerable amount of 8" wrought iron pipe at Geneva, and I thought possibly you might be able to utilize this and perhaps save some expense in that way.

E. C. Hart & Co. have offered to install a pump in this well, I understand, for about \$750.00, but I have no confidence in them, and the Water Works Company, following my judgment in the matter, are indisposed to let them have the work, although, of course, the price they name is somewhat attractive.

If, by our furnishing pipe, or by your erecting



the work, we could get the price down to not over \$1200.00, I think the Company would be disposed to place the order with you.

Please look this matter over, in view of the circumstances and conditions mentioned above, and advise me at your earliest convenience as to what you can do. Please send a sketch of the pump you would propose to install, so that I may submit it to the Company.

I trust I may receive a reply by the earliest mail.

Yours very truly, [173]

**Defendants' Exhibit "M-58."**

(TELEGRAM)

June 3rd, 1903.

Byron Jackson Machine Works,  
San Francisco, Cal.

Geneva well eleven and one-half inches clear.  
Please rush pump as fast as possible.

DANIEL W. MEAD.

PAID.

**Defendants' Exhibit "M-59."**

San Francisco, Cal., Apr. 20, 1903.

Mr. Daniel W. Mead,  
1st National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

Regarding the Geneva Pump,—it will require new patterns and new design and while it is true the lift is only 100 ft., only half that of the Pabst Brewery Co.'s pump, the diameter is much less and therefore is more difficult to get the capacity and

head, but if we can succeed with one, we can succeed with the other in the same time and while I would rather not have two such conundrums on hand at one time, I will undertake it if your clients will pay the price if I was to deliver and install this on the same terms as the Pabst pump and want \$2000. This price of course includes freight so that all I would have to add would be the man's time attending to it. The same man could probably attend to both pumps.

I am unfortunate in not having Mr. Vandegrift here to [174] help me do this work. I have two draughtsmen in the drawing room, but neither of them have experience in this line of work. So I have got to rely entirely on myself unless Mr. Vandegrift returns before I arrive at a decision.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/PL.

**Defendants' Exhibit "M-60."**

**Defendants' Exhibit "M-61."**

Defendants' Exhibits "M-60" and "M-61" are identical in every respect with Defendants' Exhibit "M-57" and are therefore not copied into the record. The original exhibits are, however, attached to the original deposition.

**Defendants' Exhibit "M-62."**

Danville, Ill. 5-14-03.

Byron Jackson Machine Co.,

San Francisco, Cal.

Gentlemen: I discussed the pump question by long

distance phone today with the Lake Geneva Wis. Water and Light Co—and they decided to accept your proposition for a pump. I told them to have measurements made of inside of casing at once and I will advise you by wire as soon as they make them. They need the pump badly and I trust you will go ahead with it as rapidly as possible. We shall expect you to ship within the sixty days agreed. Send on your contract.

Very truly,

DANIEL W. MEAD. [175]

**Defendants' Exhibit "M-63."**

August 21st, 1903.

Byron Jackson Machine Works,

San Francisco, Cal.

Gentlemen:

I am in receipt of the following letter from Mr. W. E. Hinchliff, who is the principal owner of the Lake Geneva Water & Light Plant.

The season is so far advanced that they apparently have no need for the pump during the present season, and, for financial reasons, would prefer to let the matter rest until next Spring, giving you more time to complete the work to your full satisfaction.

You will note what they say concerning the Hart people. I do not think that Hart has any patents; however, this same question is bound to arise, and if you have applied for a patent on your pump, and have had the records searched, you can probably give some definite information as to whether there is a possibility of infringement or not.

Yours very truly,

**Defendants' Exhibit "M-64."**

San Francisco, Cal., May 18, 1903.

Mr. Danl. W. Mead,  
Chicago, Ill.

Dear Sir:

Both Mr. Jackson and Mr. Vandegrift are out of town and will not be back for a few days, but will make contract and [176] plans for Geneva pump immediately on return of either.

Your telegram regarding diameter of Pabst pump is not very clear. Part of the patterns are already made for 14" diam. I hope and believe that you can spread the pipe by suitable taper plug, making it receive 14" diam pump. But we will suspend this portion of work until we hear from you, so that the pump can be made less diameter if necessary.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per AMES.

BA/JAC.

**Defendants' Exhibit "M-65."**

San Francisco, Cal., May 20, 1903.

Mr. D. W. Mead,  
Chicago, Ill.

Dear Sir:

We are in receipt of yours of May 14th regarding the Geneva pump. Also your telegram of same date saying "Go ahead with Lake Geneva pump. Am having well measured." On receipt of this telegram, I was out of town, so there was nothing

done on the work until today. I will make the contract and forward same as soon as we *we* have had time to make some drawings, so as to make it approximately definite in the specifications what we propose to make.

I had given up the idea of getting this order, as I supposed our competitor the E. C. Hart Co., bid of \$750.00 would take the order. Even now I am undecided as to whether you [177] accepted the bid on the pump f. o. b. Geneva for \$1500.00 or installed for \$2000.00. So unless I hear from you before I forward the contract I will make it up both ways, so that you can have your option.

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

BJ/JAC.

**Defendants' Exhibit "M-66."**

San Francisco, Cal., June 13, 1903.

Mr. Daniel W. Mead,  
Chicago, Ill.

Dear Sir:

Enclosed I hand you the blue print of the drawing we made for the Geneva Lake Water Co. We found it more difficult to make a satisfactory design for this pump in a 12" wheel than for the Pabst Brewing Co. in the 15" wheel and we expect the best efficiency from the larger diameter pump.

After completing this drawing there will probably be some slight changes, but not enough to require mentioning. Please note that the method of oiling the bearings in the pump by a single pipe

(Deposition of Daniel W. Mead.)

from the top is quite clearly shown in this drawing and why the Pabst Co. should specify that there was no oil to be mingled with the water is a mystery to me except to assume that they did not study the question or else they wanted to be more technical than necessary. Besides it seems to me if they were going to take any action about a contract, it was [178] about time they were doing it as they have had ample time and they expect us to be in time. I am a little in doubt whether we will get done in 60 days though we have got far enough along now so that we can push the work and hope to have it tested in a short time. I am submitting you the drawing 1.E.73, and hope you will carefully consider it and see if there is anything that you can suggest that will help us out, or if there is anything that will prevent its successful installation by the purchasers.

I have not yet written up any contract for this and have been waiting to know whether we were to install it or whether they were to buy it F.O.B. cars Geneva.

Hoping to hear from you soon, I am,

Yours truly,

BYRON JACKSON MACHINE WORKS.

Per BYRON JACKSON.

Gn. Ct.

BJ/PL. [179]

Q. Please state of your own knowledge what was done with the original letter, of which you have testified Defendants' Exhibit "M-44" is a copy.

A. It was sent to the Pabst Brewing Company.

(Deposition of Daniel W. Mead.)

Q. By whom?

A. By me. "M-44" is a copy of letter received by me from the Byron Jackson Machine Works, referring to the Pabst Brewing Company matter, and sent to them for their information, and a copy retained for my own files.

Q. Can you state when you sent that original letter to the Pabst people?

A. It was early in May, 1903.

Mr. LYON.—Q. You have no way of fixing the exact date?

A. No. Well, now, I don't know. Just wait a minute. If you want that exact date possibly I can give it to you. What is the date of that letter?

Q. April 29th, 1903.

A. I sent a copy of that letter to the Pabst Brewing Company on May 11th, 1903.

Mr. BLAKESLEE.—Q. Have you any record of so sending this Byron Jackson letter of April 29th, 1903, to the Pabst Company?

A. I have a letter dated May 11th, 1903, addressed to the Pabst Brewing Company, Milwaukee, Wisconsin. Mr. G. G. Pabst, Vice-president, which is a carbon copy of the letter sent to them on that date and which has been in my files ever since.

Q. And was signed by you when you mailed it?

A. It was signed by me; yes. [180]

Witness refers to letter marked for identification Defendants' Exhibit "M-67."

It is hereby stipulated that the letter to the Pabst Brewing Company under date of May 11th, marked

(Deposition of Daniel W. Mead.)

Defendants' Exhibit "M-67," may be received in evidence and copied into the record as follows:

**Defendants' Exhibit "M-67."**

May 11th, 1903.

Pabst Brewing Co.,  
Milwaukee, Wis.

Mr. G. G. Pabst, Vice-pres.

Dear Sir:

I am in receipt of a letter from Byron Jackson dated April 29th forwarded to me at Danville, Ill., together with certain drawings. Copy of the letter as far as it refers to the pump for your place is enclosed herewith. I have just returned from Danville and also find a letter from Mr. Jackson dated May 5th, copy of which is enclosed herewith.

You will note from Mr. Jackson's first letter that he thinks it is very essential that a dummy pump should be lowered into the well. You will note in the copy of his contract sent you some time ago that he asks you to guarantee the diameter of the well. This, of course, we will have to accept, as it is a matter beyond Mr. Jackson's control, and I think the only safe way would be to insert the dummy pump as he suggests. I would suggest that this be done, and the largest diameter which can be guaranteed wired Mr. Jackson as early as possible.

[181]

Yours very truly.

It hardly seems to me that Mr. Jackson should require you to guarantee the bearings. As I understand it, you are virtually paying him \$500.00 for a



(Deposition of Daniel W. Mead.)

ninety day test, and if there is excessive wear shown in these ninety days, he should certainly make any corrections which the indications require at that time. I hardly think Jackson would refuse to ship the pump on this account, although you will note he suggested it in the last paragraph.

I have heard nothing from you concerning the contracts which I forwarded to you from Danville a week or ten days ago. Would you kindly advise me what action you have taken in this matter?

Please note that the first page of Mr. Jackson's letter of the 29th, refers to a pump for the Lake Geneva Water & Light Co. which is to be 100 ft. below the surface, and furnish 700 gallons per minute.

Yours very truly,

Q. Did you receive any reply *from* to this letter from the Pabst people?

A. Under date of May 12th, 1903, I received an acknowledgment of receipt of my letter, together with the enclosures, signed by the Pabst Brewing Company, Mr. G. G. Pabst, Vice-president, which has been in my files ever since.

Witness refers to letter marked for identification Defendants' Exhibit "M-68."

It is stipulated that the letter above last referred to marked Defendants' Exhibit "M-68" may be received in evidence and copied into the record as follows: [182]

(Deposition of Daniel W. Mead.)

**Defendants' Exhibit "M-68."**

Milwaukee, Wis., May 12, 1903.

Mr. Daniel W. Mead,

First National Bank Bldg.,

Chicago, Ill.

Dear Sir:

We have yours of the 11th inst. as well as the various enclosures sent therewith.

Yesterday we sent you blue prints showing the result of the work we have been carrying on to find the true diameter of the hole for the Jackson pump. We think it might be advisable for you to telegraph this diameter to Mr. Jackson and also tell him that a letter from us and the contract will follow shortly.

We are again going to make a test of the diameter with a dummy pump as suggested by Mr. Jackson. This will take us several days but we shall use our utmost efforts to get the work done as quickly as possible. Upon the completion of this test we shall communicate with you at once.

Yours very truly,

PABST BREWING COMPANY,

G. G. PABST,

Vice-president.

GGP/AHM. [183]

Q. I note that the letter to you from the Byron Jackson Machine Works, a copy of which is marked Defendants' Exhibit "M-44," refers to certain drawings. Do you know where those drawings are to-day? A. I haven't any idea.

(Deposition of Daniel W. Mead.)

Q. Do you know what was done with them after you received them?

A. They were sent to the Pabst Company.

Q. Are they within your control at the present time? A. They are not.

Q. Please look among the blue-prints and miscellaneous papers on the table here and see if you can discover any drawing that in any way bears resemblance to the drawing you have last mentioned as having been sent to the Pabst Company.

A. I find four drawings which are essentially similar to those which I was receiving about the date mentioned. I can only certify to them in general design. I don't remember of course the details; that is, the dimensions. They are the drawings designated by the numbers 3. C. 73, 1-E-72, 1-E-70, and R-109.

I am incorrect in regard to my statement. When it comes to getting these down to a definite date, I couldn't certify to having received any of these drawings at a certain date. I can only certify to having seen the drawings or similar ones, in connection—

Mr. LYON.—At some time.

A. Well, about this time. It was in connection with this Geneva and Pabst pumps. I remember very distinctly the details, but I don't remember any dimensions. And these were all you understand received about the same time. Well, I couldn't [184] certify that any one of these was received with that particular letter. I wouldn't

(Deposition of Daniel W. Mead.)

undertake that, because I couldn't recall it.

Q. Did you want to add this (indicating) in that group?

A. I want to revise that statement and say that I apparently misstated the facts in saying that those drawings that were hitherto mentioned were received with that particular letter. They were simply received in connection with the pumps purchased for the Pabst Brewing Company and for the Lake Geneva Water Company, and I won't attempt to state the time of the receipt closer than the year 1903. I couldn't say just exactly which letter was received on certain dates.

Q. Which drawing, you mean?

A. Which drawing was received on certain dates. I couldn't attempt to do that.

Q. Are you prepared to state the time in the year 1903?

A. No, I couldn't say; except that it was received during that year.

Mr. LYON.—Now, I suggest that you call the numbers of these drawings or blue-prints which have been on the table, so as to just clear the witness' testimony.

(The numbers of the drawings given by the witness were read by the reporter and checked by the witness with the drawings).

The WITNESS.—This is another one I have seen: 2-D-40. Just what date I don't remember.

Q. That same year? A. Yes.

The WITNESS.—That (indicating) was a drawing submitted [185] to me, and I am not sure

(Deposition of Daniel W. Mead.)

whether this was the Pabst or the Lake Geneva.

Mr. LYON.—That is drawing 3-E-22? A. Yes.

Q. Have you in your files any of the originals of these prints just identified by you, or copies thereof?

A. No, I have not. They were all forwarded to the companies that purchased the pumps and I have never seen them since as far as I remember. Jackson wasn't fond of sending out duplicate copies, so I never had any—

Mr. BLAKESLEE.—We offer in evidence these prints just selected by the witness in his recent testimony, as follows:

1-E-72 as Defendants' Exhibit "M-69" (which for the purpose of comparison on the record we believe will be found to agree with Defendants' Exhibit 5).

1-E-70 as Defendants' Exhibit "M-70" (which we believe on comparison will be found to agree with the corresponding marked tracing of Defendants' Exhibit 6).

R-109 as Defendants' Exhibit "M-71" (which we believe on comparison will be found to agree with the similarly identified tracing of Defendants' Exhibit 6).

3-C-73 as Defendants' Exhibit "M-72" (which we believe on comparison will be found to agree with the similarly marked tracing of Defendants' Exhibit 6).

1-E-73 as Defendants' Exhibit "M-73" (which we believe on comparison will be found to agree with the similarly marked tracing of Defendants' Exhibit 6).

(Deposition of Daniel W. Mead.)

2-D-40 as Defendants' Exhibit "M-74" (which we believe on comparison will be found to agree with the similarly [186] marked tracing of Defendants' Exhibit 6).

3-E-22 as Defendants' Exhibit "M-75" (which we believe on comparison will be found to agree with the similarly marked tracing of Defendants' Exhibit 6).

Mr. LYON.—We object to each of the above offers as irrelevant, immaterial and incompetent, no foundation laid; and object to the parenthetical statement after each offer as not evidence, the said Defendants' Exhibits 5 and 6 speaking for themselves.

By Mr. LOFTUS.—A duplicate of each of Exhibits "M-69" to "M-75," inclusive, are attached to this deposition in Case No. 485 and offered in connection therewith.

Mr. LYON.—To which we urge the same objection as just noted on the record; but no objection to the fact that they are duplicate copies. In other words, we do not object to the fact that the attached blue-prints are not the identical blue-prints that the witness picked out, but are duplicates thereof produced by counsel.

(By Mr. BLAKESLEE.)

Q. Mr. Mead, I hand you Defendants' Exhibit "M-44," being the letter of the Byron Jackson Machine Works addressed to you April 29, 1903, and at the same time I hand you Defendants' Exhibit "M-74," being a blue-print bearing the legend "2-D-40," and ask you whether or not said blue-print has anything to do with the drawings discussed in the said letter of April 29, 1903?

(Deposition of Daniel W. Mead.)

Mr. LYON.—That is objected to as leading and suggestive and as having fully been answered by the witness [187] in so far as he has been able to do so; and as incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, and no foundation laid for the witness to answer the question; and as calling for the conclusion of the witness and incompetent for this reason.

Q. In that connection please read the said letter carefully.

Mr. LYON.—I repeat each of the said objections.

A. I think that this blue-print 2-D-40 is a copy of the blue-print which accompanied the letter of April 29, 1903. I can only identify it as regards the general design and some of the figures that are contained in the letter which are identical with those shown on the print; but there are many other dimensions of which I have no distinct recollection.

Mr. LYON.—I move to strike the answer from the record and exclude it from consideration upon each of the grounds stated in the objection.

Q. As between these several blue-prints last identified by you and offered in evidence, including this blue-print 2-D-40, is your recollection any clearer as to any one of them than as to the others with respect to its accompanying this letter Defendants' Exhibit "M-44"?

Mr. LYON.—That's objected to as leading and suggestive and as having been fully answered, as incompetent, no foundation laid calling for the conclusion of the witness and not for a statement of fact.

A. I think this 2-D-40, which was a general draw-

(Deposition of Daniel W. Mead.)

ing, not in very great detail, but showing some of the principal details, and which was partially to show the necessity of carefully calibrating the well for diameter, and which is dated simply [188] the day before the letter of April 29th, and in which letter Mr. Jackson says he has just received the blue-print, and which was the essential blue-print for my work at that time—makes me believe that this was the blue-print that accompanied the letter of April 29th, 1903.

Mr. LYON.—We move to strike the answer from the record and exclude it from consideration upon each of the grounds stated in the objection; and upon the further ground that it is incompetent, merely the guess or deduction of the witness and not a statement of fact, argumentative.

Q. When you received this blue-print like 2-D-40, please state, if you recollect, what you understood the blue-print to disclose to you as to its various features.

Mr. LYON.—We object to that as incompetent irrelevant and immaterial, the Exhibit "M-74," blue-print 2-D-40, speaking for itself.

Mr. BLAKESLEE.—We are dealing now with the question and defense of disclosure on the part of the witness.

Mr. LYON.—The further objection to a mere disclosure on the ground that it is immaterial and too late, being subsequent to the execution of the application for the patent in suit by Mahlon E. Layne, and the disclosure being subsequent to the actual filing of the Layne application for the patent in suit.

Mr. BLAKESLEE.—This is only one phase of the



(Deposition of Daniel W. Mead.)

continuing acts regarding this invention, as covered by our several defenses.

(Question read.)

A. Well, it disclosed in general the details proposed for the [189] Pabst pump, in giving its number of steps, the outside dimensions, the arrangement of the steps to each other, and the arrangement of the discharge and of the shaft and bearings, in a general way; the drawing not being a complete drawing of the entire installation, but only the lower portion, together with the subdivision of the discharge pipe, shaft and enclosing pipe as they would appear in the casing above the pumps; together with also a detail showing how the bearings were maintained in position and the adjustments necessary for alignment, as adapted by the Byron Jackson Machine Works to this Pabst pump. By alignment I referred of course to the alignment of the shaft, which was in the neighborhood of two hundred feet long and ran from the surface down to the pumps located approximately two hundred feet below the surface in the 15-inch drive casing.

Q. What did you understand to be the organization of the parts designated at the upper left-hand corner of this drawing by the words "Bearing A" and "Bearing B"?

A. They represent the bearings that maintained the shaft in alignment, and the Bearing A showed an adjustment whereby the inner pipe would be lined up by certain adjustments to take care of any irregularities in the outer or discharge pipe.

Q. And what did you understand by the vertical

(Deposition of Daniel W. Mead.)

lines parallel with the shaft in these bearing parts and just slightly placed from the shaft?

Mr. LYON.—The same objection last noted on the record to the preceding questions, including all of the objections to the preceding questions. [190]

A. Those were places I understood where bearing metal would be in contact with the shaft and contained in the bearing proper.

Q. What did you understand to be the part in this drawing in the upper left-hand corner, which is given a dimension figure of  $3\frac{3}{4}$  inch?

A. That was the inside diameter of the pipe which separated the shaft from the discharging water.

Q. And what did you understand to be the part adjacent thereto designated by the dimension figures  $8\frac{5}{8}$  inch?

Mr. LYON.—Same objections.

A. The  $8\frac{5}{8}$  inches represented the inside diameter of the discharge casing.

Q. What was its relation to the inside  $3\frac{3}{4}$  inch casing?

A. Between the two casings there was an annular space through which the water was discharged.

Q. And how were their axes to be related—these two casings?

Mr. LYON.—Same objections.

A. Concentric.

Q. You have spoken of a pump I believe for the Geneva Water Company or Geneva Lake Water Company.

A. Well, the water company at Geneva, Wisconsin. The name I don't recall particularly at this

(Deposition of Daniel W. Mead.)

time, because I have had no dealings with them for nearly twenty years.

Q. What sort of a pump was that?

A. Well, it was a similar pump. My recollection is—

Mr. LYON.—Objected to as incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, and as irrelevant and immaterial.

A. It was similar to the pump to be furnished to the Pabst [191] company, with the exception that it was smaller in diameter and the lift was only about a hundred feet. My recollection is that the casing in which it was to be placed was something like 11 or 12 inches and that the lift was essentially one hundred feet.

Q. When was that pump installed?

(Same objection.)

A. Well, that I can't say. I arranged for its purchase during the year 1903 as shown by the correspondence which has already been submitted, but there was some delay and some postponement of the installation, and there was some misunderstanding a little later concerning my relations with the company and I lost track of the proposition, simply knowing in a general way of the installation of the pump, but nothing whatever concerning its operation or what it accomplished.

Mr. LYON.—In view of the last answer of the witness we move to strike the entire testimony given and answered by the last questions in regard to such Geneva Lake pump installation from the record and

(Deposition of Daniel W. Mead.)

exclude the same from consideration, not only upon each of the objections and grounds stated in the objections to the questions, but upon the further ground that it is incompetent, no foundation laid, the witness not having been qualified to answer the questions.

Q. Did any drawings of any kind ever come to your hands in connection with this Geneva Lake Water Company matter?

A. My recollection is that I had full detailed drawings pass through my hands and were forwarded to the Lake Geneva Water Company. I did not retain any of the drawings, however.

Q. Do you know where any of them are to-day?  
[192] A. I do not.

Q. What was your relation to that matter?

A. I was engineer for the Lake Geneva Water Company.

Q. And you do not know where any of those drawings that passed through your hands are at present, namely, those relating to the Lake Geneva Water Company matter? A. I do not.

Q. Please look among the tracings and miscellaneous papers on the table here and see if you recognize anything which bears any resemblance to such tracings or drawings.

Objected to as incompetent, no foundation laid—not the best evidence and no foundation laid for the introduction of secondary evidence; calling for the mere conclusion or guess of the witness and not the proper method of proof, and as irrelevant and immaterial.

(Deposition of Daniel W. Mead.)

A. I find one among the blue-prints already mentioned which is designated by the letters and figures 1-E-73, and also find two others: one designated as 1-C-96 and one as 3-C-74, that were drawings prepared for the Lake Geneva Water Company, and according to the best of my recollection are in all essential details similar to those received by me as engineer for that company and forwarded to the company. I could verify them only as to general details and not as to exact dimensions.

Q. When did you receive drawings such as you have stated in this Lake Geneva Water Company matter from Byron Jackson Machine Works?

A. Some time during the year 1903, the summer of 1903. Some time during the summer. I couldn't locate it any closer than that. [193]

Mr. BLAKESLEE.—We offer in evidence the two additional blue-prints just selected by the witness, as follows: The blue-print 3-C-74 as Defendants' Exhibit "M-76" (which we believe will be found on comparison to agree with the similarly marked tracing in evidence as part of Defendants' Exhibit 6). And we likewise similarly offer in evidence the blue-print 1-C-96 as Defendants' Exhibit "M-77" (which we believe on comparison will be found to agree with the similarly marked tracing in evidence as part of Defendants' Exhibit 6).

Mr. LYON.—Objected to as incompetent, no foundation laid; not the best evidence; no foundation laid for the introduction of secondary evidence; and as irrelevant and immaterial, being subsequent to the date of the filing of the application for the patent in

(Deposition of Daniel W. Mead.)

suit. The objection to the parenthetical statement as to comparison of said alleged blue-prints and portions of Defendants' Exhibit 6 is made, that the same is not competent as evidence and that Defendants' Exhibit 6 and each of the parts thereof speak for themselves.

By Mr. LOFTUS.—A duplicate of each said Exhibits "M-76" and "M-77" are attached as exhibits to this deposition in Case No. 485 and offered in connection therewith.

Mr. LYON.—To which we urge the same objection as just noted on the record, but no objection to the fact that they are duplicate copies. In other words, we do not object to the fact that the attached blue-prints are not the identical blue-prints that the witness picked out, but are duplicates thereof produced by counsel. [194]

Q. Can you recollect any other installation which was made with bored well, centrifugal pump and other features of installation, in any dealings involving yourself and the Byron Jackson Machine Works of San Francisco, other than the Geneva Lake Water Company and the Pabst Brewing Company installations?

Mr. LYON.—It calls for a yes or no answer.

A. I do recall installations.

Q. Will you please tell us what they were.

Mr. LYON.—That's objected to as incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, and as irrelevant and immaterial, unless such installations are iden-

(Deposition of Daniel W. Mead.)

tified with the issues of this case and prior to April 3d, 1903, at least.

Mr. BLAKESLEE.—In this connection, our defenses relate to prior inventions, as well as anticipation and public knowledge.

A. I put in two other installations immediately following 1903. One for the Waterloo Water Company, which was owned by N. W. Harris & Company, bankers, of Chicago—owned or controlled by them. That installation was installed in 1904. Shortly after that—I can't give the date, although I can look it up for you if you desire—I installed a similar unit for the Green Bay Water Company of Green Bay, Wisconsin. Afterwards, the dates of which I can't give, a second unit was added to both plants.

Q. In what state was this Waterloo installation?

A. Waterloo, Iowa.

Q. Where was this Green Bay installation?

A. Green Bay, Wisconsin. [195]

Q. Prior to considering those installations, I show you another blue-print, marked at the bottom 2-E-83, and ask you if you know anything about it.

Mr. LYON.—That is objected to as leading and suggestive, calling for the conclusion of the witness, irrelevant and immaterial, and as too late to be material on the issues of this case.

A. This blue-print is a copy from a tracing made in my office of the original blue-print which was submitted to me by Byron Jackson—I believe for the Waterloo pump. I have the original of that, but can't spare it from my files, and I have certified on this that it is an exact copy. I can produce the orig-

(Deposition of Daniel W. Mead.)

inal for your examination if you wish.

Q. Was this tracing of this blue-print here before us made under your instructions? A. It was.

Objected to as leading and suggestive.

A. (Continued.) —and was checked up by me to see that it agreed with the original, and it contains a certificate in fact by the draughtsman who made it, and by myself.

Q. When was this blue-print and this tracing made?

Mr. LYON.—Objected to upon each of the grounds stated in the objection to the question asked the witness in regard to this blue-print.

A. Well, the tracing and blue-print was made in November 1919, of a blue-print received by me from Byron Jackson Machine Works in the summer of 1904.

Mr. BLAKESLEE.—We offer this blue-print last identified in evidence as Defendants' Exhibit "M-76," to wit, [196] this blue-print marked 2-E-83.

Mr. LYON.—Objected to as irrelevant, immaterial and incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence; and all of the recitals upon such blue-print are each severally objected to as incompetent.

Subject to the objection made to the blue-print, a duplicate of such print marked Defendants' Exhibit "M-78" is attached to the return of this deposition in Case No. 485, with the same force and effect as though it were the blue-print produced here this morning and identified by the witness, but subject to all of the objections which are of record to the blue-



(Deposition of Daniel W. Mead.)

print so produced by the witness.

Q. What, if anything, did you have to do with the installation of this Waterloo Water Company pumping plant you have spoken of?

A. I advised the company to purchase one of the deep well centrifugal pumps from the Byron Jackson Machine Works. I am not sure whether I conducted the negotiations or not. But I saw it installed afterwards and saw it in operation, and afterwards advised the installation of a second unit of the same kind.

Q. Was that installation made, the second one?

A. It was.

Q. When did you see the first installation of the Waterloo company in operation?

A. Well, I could only tell you in a very general way that it was shortly after its installation. I think it was installed late in 1904 or early in 1905 and I saw it in operation there [197] at that time.

Q. What was the construction and organization of that pump installation?

A. It was in its general design almost identical with those installed at Lake Geneva, and at Milwaukee for the Pabst company.

Mr. LYON.—The answer is objected to as not responsive, as incompetent, as a mere conclusion of the witness and not a statement of fact.

Q. Do you know for what period of time this Waterloo installation was operated?

A. Why, to the best of my knowledge and belief it is still in operation.

Mr. LYON.—We move to strike the answer from

(Deposition of Daniel W. Mead.)

the record and exclude it from consideration upon the ground that it is incompetent, no foundation laid, and not proper evidence.

Q. Do you remember what the head of water was in that Waterloo installation?

A. I do not. I have the record in my office, because the well was bored under my direction, and in fact an estimate was made prior to the drilling of the well as to its necessary depth and the height to which the water would rise, etc. And I was there after it was drilled, to determine the conditions actually found and how nearly they substantiated my estimates. I can't recollect, however, the details as to where the water stood. I know we got about a million gallons per day from that well and that the pump was located below the surface about two hundred feet. [198]

Q. What was that water used for?

A. For domestic supply for the city of Waterloo.

Q. And from whom was the pump installation purchased?

A. Byron Jackson Machine Works, San Francisco.

Q. Of your own knowledge can you state whether there was any oil found present in the water delivered by the Waterloo installation?

Objected to as leading and suggestive.

A. I don't recall.

Q. Can you state what if any lubrication was provided for that Waterloo installation?

Mr. LYON.—Objected to as irrelevant and immaterial, subsequent to the date of the application.

A. Oil was used as a lubricant—was to be used as

(Deposition of Daniel W. Mead.)

a lubricant in the four pumps that I mentioned and as far as I know was so used.

Mr. LYON.—We move to strike the answer from the record on the ground that it is incompetent, no foundation laid, the witness not having qualified to answer the question, and as not responsive.

Q. How was that oil to be supplied and fed in those several four installations?

Mr. LYON.—Same objections.

A. To the best of my recollection it was simply inserted at the top of the shaft, allowed to flow down the shaft into the various bearings, and the residue finally found its way out through some form of stuffing-box at the bottom of the shaft.

Q. How was the oil finally disposed of after passing the stuffing-box?

Mr. LYON.—Same objections. [199]

A. Well, it came up in the discharged water.

Q. How about this Green Bay installation you have spoken of—when was that put in?

A. I would have to look that up and advise you, if it is necessary to know. I should say about 1905. I am not positive in regard to the date. I have the dates, however, at my office if it is essential.

Q. What did you have to do with that installation?

A. I redesigned and rebuilt the entire plant and installed this new water supply.

Q. Where did the pump mechanism come from?

A. The deep well pump mechanism was purchased from the Byron Jackson Machine Works.

(Deposition of Daniel W. Mead.)

Q. What, if anything, did you have to do with that?

A. Well, I arranged for the purchase and supervised the installation and tested it as to operation, and afterwards advised the company in regard to installation of a second unit of the same kind.

Q. Do you know whether that was purchased or not?

A. I know it was purchased; yes.

Q. Do you know whether it was installed or not?

A. I know it was installed.

Q. Now, as to this Green Bay installation and the Geneva Lake installation, what sort of pumping mechanisms were they, namely, the deep well mechanisms that you have mentioned?

Objected to as irrelevant and immaterial.

A. They were the deep well centrifugal pumps that we have been discussing; consisted of several pumps, one pumping into the other to give the required head, and in each of the first [200] installations in the four places mentioned they were driven by quarter-turned belts and by steam engines. The second pump Waterloo and the second pump Green Bay were driven by direct connected motors operated electrically at some distance away from the main pumping station.

Q. In what respects, if at all, did the Green Bay installation and the Geneva Lake installation compare with the Pabst and the Waterloo installations you have told us about?

Objected to as leading and suggestive, as incompetent, calling for the conclusion of the witness and

(Deposition of Daniel W. Mead.)

not for a statement of fact, not the proper method of proof, and not the best evidence.

A. They were all essentially the same, with minor improvements as experience demonstrated the necessity of such improvements. No material changes in general design. They were all quite similar.

Q. Please look among the miscellaneous blue-prints upon the floor and table here and see if you can locate any blue-print which in any way resembles the data which went through your hands in connection with this Waterloo installation.

A. I find one blue-print marked "Waterloo Water Company, Waterloo, Ind.," which I judge is really a print of the one at Waterloo, Iowa. I couldn't identify it, however. I am not at all certain whether I ever saw that particular print or not. It, however, is somewhat similar, except in greater detail, to the print 2-E-83, and it may or may not be. I wouldn't undertake to identify that particular drawing.

Q. What have you to say as to the disclosures in this drawing at the top of the main figure, in comparison with the [201] Waterloo installation?

Mr. LYON.—That is objected to as leading and suggestive, as incompetent, not the best evidence, not the proper method of proof, no foundation laid for the introduction of secondary evidence. Witness has already testified that he is not aware as to whether he has ever seen this print before or not.

A. Well, the general arrangement shown by this print which is numbered 1-C-131 is just the same

(Deposition of Daniel W. Mead.)

as in the print marked 2-E-83 as far as the conditions are disclosed by the two prints. In each case there is a 9-inch discharge pipe, and an interior pipe surrounding the shaft and separating the shaft from the discharged water.

I would like to make one correction in the statement I have just made, that the print 2-E-83 does not as far as I observe give the exact dimensions of the discharge pipe, but simply shows the general arrangements, which are similar, as far as arrangements go, to those shown on print 1-C-131.

I will have to make another change and state that on the print 2-E-83 is given a bill of material for the pipe, shafting, coupling and bearings, and that bill of material shows that the casing is 9 inches outside diameter, as shown on drawing 1-C-131; that they are using  $3\frac{1}{2}$  inch inside pipe, as shown on drawing 1-C-131, and contains other dimensions which are similar to those of the drawing 1-C-131; the outline on drawing 2-E-83 being too small to show these minor dimensions.

Mr. BLAKESLEE.—We offer in evidence the blue-print selected by the witness in his last answer, to wit, 1-C-131, [202] as Defendants' Exhibit "M-79" (and it is believed on comparison the same will be found to agree with the tracing similarly identified and in evidence as part of Defendants' Exhibit 6).

By Mr. LOFTUS.—A duplicate of said Exhibit "M-79" is attached as an exhibit to this deposition in Case No. 485 and offered in connection therewith.

(Deposition of Daniel W. Mead.)

(By Mr. BLAKESLEE.)

Q. I now hand you a group of letters and copies marked respectively Defendants' Exhibits "M-80" to "M-91," inclusive, purporting to be correspondence between yourself and Pabst Brewing Company, each bearing a date at its top, and will ask you if these are letters and copies of letters respectively received by and written by you at or within a day or two of the dates appearing at the tops thereof, between yourself and the Pabst Brewing Company, and if the same have been in your files since the dates of mailing and receipt respectively, and if you signed and mailed the originals of the copies of your letters among these letters, and received the other letters from the Pabst Brewing Company, and if they have all been in your files since substantially the dates of such letters and copies, the unsigned exhibits being the letters from you to the Pabst Brewing Company?

A. Yes.

It is stipulated that said correspondence, consisting of Defendants' Exhibits "M-80" to "M-91," inclusive, may be received in evidence and copied in the record, as follows: [203]

Letters, documents and papers identified by the witness this morning and referred to as Defendants' Exhibits "M-80" to "M-91," inclusive, are offered and received in evidence as so identified by such letter and number respectively and are copied in the records by stipulation as follows:

**Defendants' Exhibit "M-80."**

August 20th, 1903.

Pabst Brewing Co.,  
Milwaukee, Wis.

Gentlemen:—

I enclose herewith a letter just received from Byron Jackson Machine Works.

The telegram to which Mr. Jackson refers, was sent to my house, mailed to me at Fort Worth, and received Tuesday night just as I was taking the train for this place. I had left instructions at this office to forward any dispatches received directly to me, but as the dispatch contained no very definite information I have waited until arriving in Chicago, and find Mr. Jackson's letter explaining the same at hand.

You will note that Mr. Jackson asks that he be advised by wire if you will extend the time as suggested and will accept pump without the oiling and patent clause. Will you wire him direct, or do you prefer to advise me and have me do so?

Awaiting your instructions, I am,

Yours very truly, [204]

**Defendants' Exhibit "M-81."**

Milwaukee, Wis., June 18th, 1903.

Mr. Daniel W. Mead,  
First National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

We have been trying to solve the objections which Mr. Jackson finds to the contract submitted to him



(Deposition of Daniel W. Mead.)

by us for the centrifugal pump and we believe that we have succeeded in everything with the exception of that part referring to the quantity of oil which is likely to get into the water from lubricating the bearings. Of course, it is utterly impossible for us to utilize water in which a certain amount of oil is contained and if Mr. Jackson feels confident that the amount will be so trifling in comparison with the large quantities of water he ought to be willing to send the pump subject to our acceptance. Mr. Jackson must appreciate the fact that we will not reject the pump if it is in any way possible for us to use it. We want water and will not stand in our way on account of an imaginary technicality.

The question of water in the well we would leave entirely to you or to two engineers, one to be appointed by Mr. Jackson and one by us, and if they wish, call in a third, or stand by the test of air pressure as you suggest. That should certainly be satisfactory to Mr. Jackson, our point only being that we do not want to accept for granted that there is no water in the well if his pump does not bring any up. We think our point on that score is well taken. [205]

The question of patent infringement suit we are willing to waive entirely. We have given the matter considerable thought and have come to the conclusion that possibly the only trouble could arise from your friend Mr. Hart, and as we have given him ample opportunity to demonstrate the feasibility of his patents, and of which Mr. Hart would not take advantage no doubt owing to the fact that his

device was not practicable, ought to put him out of the race altogether.

We have changed the contracts in accordance with the above and enclose you herewith a copy. In order to save time we have also sent one to Mr. Jackson, and suggest that it would be a good plan to have you write to Mr. Jackson in the premises.

Have wired Mr. Jackson today that we have mailed him the contracts.

Yours very truly,  
PABST BREWING COMPANY,  
G. G. PABST,  
Vice-president.

G. G. P./A. E. M.

**Defendants' Exhibit "M-82."**

Milwaukee, Wis., May 18, 1903.

Mr. Daniel W. Mead,  
Chicago, Ill.

Dear Sir:—

We confirm herewith our telegram of today as follows: "Fourteen inch dummy goes down two hundred feet. Are sending contracts. Wire Jackson."

We need not, we think, say anything further as to the [206] size of the hole for the Jackson Pump.

Referring to your letter of the 11th inst., with various enclosures and blue-prints, we wish to say that we cannot quite agree with Mr. Jackson, concerning the guarantee as to bearings and think that we can hardly be expected to pay this part of the expenses as it is included in the item of payment

which we agreed to in the contract. Of course Mr. Jackson must take it for granted that we will use every possible precaution to keep his installation in perfect running order, as it is necessarily to our interest to do so. He must, however, guarantee the wearing parts, satisfactory method of oiling, also that oil wastage into the water will be such that the water can be used for all necessary purposes; if not for brewing and boiler purposes, washing of kegs and so on which will not permit of any oil in the water, owing to the effect on our product.

However, all these points are duly covered in our contract two copies of which, in order to save time, we have today mailed to Mr. Jackson with the request to return one copy to us duly signed. We will send you a triplicate copy for your information.

Yours very truly,  
PABST BREWING COMPANY,  
G. G. PABST,  
Vice-president.

A. E. M. [207]

**Defendants' Exhibit "M-83."**

Milwaukee, Wis., Sept. 10th, 1903.

Mr. Daniel W. Mead,  
First National Bank Bldg.,  
Chicago, Ill.

Dear Sir:—

Kindly inform us whether you have had any word from Mr. Jackson concerning the centrifugal pump, which he has no doubt finished by this time.

We would like to have some information at the very earliest possible moment.

Yours very truly,  
PABST BREWING COMPANY,  
G. G. PABST,  
Vice-president.

**Defendants' Exhibit "M-84."**

Milwaukee, Wis., Aug. 3rd, 1903.

Mr. Daniel W. Mead,  
First National Bank Bldg.,  
Chicago, Ill.

Dear Sir:—

We received your letter several days ago in answer to our telegram as well as the copy of the letter from Mr. Jackson, a previous copy of which was already in our possession.

We have not as yet heard from Mr. Jackson, and desire to inform you that we are all ready for the pump. We have made [208] the air test and find water, and are now waiting anxiously for word from Mr. Jackson as to the outcome of his work.

We would like to have you inform us at your earliest convenience how matters stand and whether you have had word from Mr. Jackson lately.

Yours very truly,  
PABST BREWING COMPANY,  
G. G. PABST,  
Vice-president.

G. G. P./A. E. M.

**Defendants' Exhibit "M-85."**

July 9th, '3.

Pabst Brewing Co.,  
Milwaukee, Wis.

Gentlemen:

I am in receipt of a letter from Byron Jackson Machine Co. and inclose herewith copy of same.

In regard to the question of oil I would say that I do not think it is possible to build a centrifugal pump which will not deliver some oil to the water.

The amount of oil can be so limited as to be unobjectionable for municipal purposes but whether or not it would effect the water for your art or not I of course cannot say. I think this oil can all be trapped off at the surface if found too great for your purpose by keeping a constant head in the reservoir and drawing the water for use from the bottom. The pumps Jackson has furnished here are doing very good work and I think will prove very successful.

Very truly,  
DANIEL W. MEAD. [209]

**Defendants' Exhibit "M-86."**

June 4th, 1903.

Mr. G. G. Pabst, Vice-pres.,  
Pabst Brewing Co.,  
Milwaukee, Wis.

Dear Sir:—

Your favor of May 18th, confirming despatch of even date and enclosing copy of proposed contract sent to Jackson, was duly received, and I wired

Jackson at once, as I believe I advised you before.

I am also in receipt of a letter from Jackson, dated May 23rd, enclosing copy of a letter sent to you commenting on contract.

I returned from a two weeks trip last night, and find that a recent letter from you was forwarded to me at Danville, Illinois, so that I have just missed it. I presume this covers the same matter. Without, therefore, seeing this letter, I would make the following comments on Jackson's letter of May 23rd.

In regard to the question of oil in water, I would say that no centrifugal pump can be built and properly lubricated without at least a small portion of oil going into the water. Where the plant is handling large quantities of water, this usually is so small as not to have any effect, at least on ordinary domestic water supply. If the complete absence of oil is essential, I do not think you can use a centrifugal pump in the well.

In regard to Jackson's second point, regarding the supply of water, it seems to me that a specification, which [210] would be both satisfactory to yourselves and to him, can be drawn up. I have found that the best way of measuring the elevation of water in a deep well is by placing a small pipe,—usually  $\frac{1}{4}$ " down the well and below the inlet to the pump. By putting a gauge on top and using an ordinary hand air pump, air pressure can be raised in this pipe sufficient to force the water from the bottom of the gauge pipe. Knowing the length of gauge pipe, the pressure will indicate accurately, (at least within one or two per cent), the head of

water. As, of course, the gauge can be read before and after beginning to pump, this makes an accurate measure, which it seems to me should be satisfactory to both parties. The specification covering this method would obviate the terms "satisfactorily demonstrated," which seems to be the point to which Jackson objects.

In regard to the third point raised, I would say that this seems to be a business proposition which apparently must be settled between Jackson and yourselves. I have a complete file of the patents on centrifugal pumps, and know of no patents which could be interfered with. The use of a Series centrifugal pump is old, and cannot be patented by anyone, neither can the use of a centrifugal pump in a small well be patented. The only patents apparently possible, are the minor details of construction, and I believe the proposed features of the Jackson pump are quite different from anything that has been yet designed. Whether they are patentable or not, I am, of course, unable to say.

I trust some contract can be written which will be satisfactory to all parties, as I have great faith in Jackson's ability to accomplish the results we desire.

Yours very truly, [211]

**Defendants' Exhibit "M-87."**

Milwaukee, Wis., April 11th, 1903.

Mr. Daniel W. Mead,  
First National Bank Bldg.,  
Chicago, Ill.

Dear Sir:

Both of our pumps have again gone back on us owing to breaking of rods, foot valves, and a few minor ailments. Do you think it possible to get from Jackson one or two equipments in time to install our present wells. We should like to know about this immediately in order to properly repair and install the old equipment again, should Jackson not make immediate deliveries.

Yours very truly,  
PABST BREWING COMPANY.  
G. G. PABST,  
Vice-President.

**Defendants' Exhibit "M-88."**

April 15th, 1903.

Mr. G. G. Pabst, Vice-Pres.,  
Pabst Brewing Co.,  
Milwaukee, Wis.

Dear Sir:

As you requested by telephone, I enclose herewith copy of telegram sent to Byron Jackson Machine Works, and the original [212] of the answer received from them.

The letter to which he refers has, of course, not been received as yet. Will forward same to you as soon as received. Yours very truly,



**Defendants' Exhibit "M-89."**

Milwaukee, Wis., April 16th, 1903.

Mr. Daniel W. Mead,

First National Bank Bldg.,

Chicago, Ill.

Dear Sir:

We return you herewith your letter and telegram from Mr. Jackson and wish to confirm our telegram of today as follows:

"Offer twenty-five hundred for pump installed complete by Jackson's representative subject to ninety days successful operation."

Possibly with a little urging on your part and holding out to Mr. Jackson the prospects of installing three or four more pumps he would shorten the time of delivery considerable.

Kindly send us copy of letter when received from Mr. Jackson.

Yours very truly,

PABST BREWING COMPANY.

G. G. PABST,

Vice-President.

G. G. P/A. E. M. [213]

**Defendants' Exhibit "M-90."**

April 22nd, 1903.

Mr. G. G. Pabst, Vice-Pres.,

Pabst Brewing Co.,

Milwaukee, Wis.

Dear Sir:

Enclosed please find two letters and a telegram recently received from Byron Jackson Machine Works.

I will forward to you the letter and contract mentioned in the dispatch as soon as received.

Yours very truly,

**Defendants' Exhibit "M-91."**

Milwaukee, Wis., May 11th, 1903.

Mr. Daniel W. Mead,

First National Bank Bldg.,

Chicago, Ill.

Dear Sir:

We enclose herewith blue print which is self explanatory. The notation on the side of the blue print shows that we had a twelve inch pipe, with couplings of  $13\frac{1}{2}$ " outside diameter, down to a depth of 200 feet. By increasing the diameter to  $14\frac{1}{4}$ " with rings the pipe went down to 180 feet only.

We have given a copy of this blue print to Mr. W. H. Gray for his information.

We would suggest that you forward the copy of the blue print to Mr. Jackson so that he may fully understand the [214] *condi-* under which he will have to put down the pump.

Yours very truly,

**PABST BREWING COMPANY.**

**G. G. PABST,**

Vice-President.

G. G. P./A. E. M. [215]

Examination adjourned until 2 P. M.

2 o'clock P. M.

Direct examination of the witness resumed by Mr. Blakeslee.

(Deposition of Daniel W. Mead.)

Q. You have put before us in connection with your recollection of the Byron Jackson matter two further blue-prints. Will you please state what these are?

A. These blue-prints Nos. 1-D-14 and 3-B-41 are blue-prints furnished me by the Byron Jackson Machine Works and show a 4-inch turbine pump designed and installed to fit in a 10-inch casing well. This pump was described to me by Mr. Byron Jackson in one of his earliest communications in regard to the feasibility of centrifugal pumps for deep well work, and these blue-prints were, as nearly as I can now recall, furnished me in about 1902 in the course of our correspondence or in connection with my interview with Mr. Jackson in California.

Q. At the time these two last produced prints were put before you, did you understand the showing and contents thereof?

A. Yes, after they were received and I examined them.

Q. Now, referring to the blue-print 3-B-41, please state what is depicted in the view at the right hand of that print.

A. The view at the right hand shows the shaft coupling that was supposed to be used on this pump.

Q. And with the coupling what, if anything?

A. Small pieces of the shaft inserted in the coupling.

Q. How does that coupling and shaft ends in exact structure compare with the shaft couplings and building up of the shafting of the pumps in the Pabst, Waterloo and other Byron [216] Jackson

(Deposition of Daniel W. Mead.)

pump installations you have told us about?

Mr. LYON.—That is objected to as incompetent, not the best evidence, the exhibits speaking for themselves, and as leading and suggestive.

A. Well, I couldn't answer that, only by comparison with the drawings, because I don't recollect the details clearly enough to know how nearly identical these later pumps were with this 1900 pump of Mr. Jackson's.

Q. Refer, please, to Defendants' Exhibit "M-76" (3-C-74) and compare any structure you find therein which stands comparison with this shaft coupling construction shown in this print 3-B-41.

Mr. LYON.—Objected to on the grounds stated in the objection to the preceding question; on the further ground that this witness, the leave to take his deposition was in regard to facts and not as an expert, and that no leave has been granted to take expert testimony in this case, and the matter if not clear from the drawings or blue-prints themselves could only be subject matter of expert testimony.

Mr. BLAKESLEE.—We call counsel's attention to the fact that the stipulation providing for the taking of the testimony of this witness is not limited to fact testimony, although that has been the main burden of his testimony today.

Mr. LYON.—The representation of your motion was that you wished this as fact testimony.

Mr. BLAKESLEE.—The stipulation speaks for itself. [217]

A. The two drawings 3-B-41 and 3-C-74 each show a shaft coupling . 3-C-74 shows a coupling

(Deposition of Daniel W. Mead.)

into which the shaft of a uniform size screws from each end, and apparently held in place by the setting up of the threads into a more or less conical female thread of the coupling. On the other hand, the coupling in 3-B-41, as nearly as I can make out, shows no thread whatever on the lower connection. The lower connection is apparently held in place partially by a key or feather and partially by two rivets. The lower shaft also differs somewhat from the upper shaft, which apparently is held in the coupling by a screw at the lower end of the upper shaft, which screws into a narrow or contracted area near the center of the coupling, and the upper shaft shows no indication of a key or of rivets.

Q. With respect to the two shaft ends introduced within the coupling in print 3-B-41, what would the structure you have described there permit with respect to the union of these shaft ends?

Mr. LYON.—Same objections.

A. Well, the shaft ends abut each other apparently in drawing 3-B-41, and the construction in both the upper and lower connection is such as to permit rotation without separation of the shaft from the coupling.

Q. And how with respect to the end to end relation? A. Well, they are shown as abutting.

Q. And how with respect to lengthwise movement?

Mr. LYON.—Same objection to all these questions.

A. They permit no lengthwise movement in 3-B-41, as they abut.

(Deposition of Daniel W. Mead.)

In 3-C-74 there is a space shown which would permit of [218] endwise movement only, provided the threads were sufficiently loose to permit the further tightening up of the threads.

Q. What do you take it to be the function or purpose of the key or feather on the lower shaft end in print 3-B-41?

A. To force the rotation of the shaft through the mechanical connection with the shaft above, which I would assume is attached to a motor.

Q. And if the threads were disconnected and the lower shaft end dropped down somewhat in the coupling, what would result as to the condition in there and operation of the lower shaft end?

Mr. LYON.—Same objections.

A. If the threads were disconnected there would be no attachment to the upper shaft which would permit of the rotation of the coupling.

Q. How about the feather or key?

A. Apparently there is no key shown in the upper shaft. The only attachment is through the thread.

Q. And there is no independent connection?

A. None shown.

Q. Referring now to the print 1-D-14, have you any observations to make as to what that shows?

Mr. LYON.—Same objections.

A. That print, namely, 1-D-14, is a drawing somewhat in detail showing a section through the 4-inch turbine pump and shows the relation of the suction and discharge passages and the connection with the suction pipe below and the discharge pipe above and with the shaft, from which the pump is

(Deposition of Daniel W. Mead.)

driven from the mechanical contrivance near the surface. [219]

Q. Prior to seeing these two prints which we are discussing, had you ever seen a pump or representation of one of centrifugal type for use in small bored wells?

A. I believe, in fact I am certain that the drawing Defendants' Exhibit "M-6," also shown as 1-C-75, of the Byron Jackson Machine Works, was furnished me by Mr. Jackson prior to the time that he sent prints 3-B-41 and 1-D-14; and he also sent a second blue-print or sketch, of which I have no copy, which showed a series centrifugal pump connected by two discharge pipes with the surface.

Q. Those here that you testified about?

A. These were sent to me prior to the receipt of the drawings of the 4-inch turbine pump.

Q. The one with the two pipes is the one you have testified about before?      A. Yes.

The defendants offer in evidence the two prints just discussed, namely: 1-D-14 as Defendants' Exhibit "M-92," and 3-B-41 as Defendants' Exhibit "M-93."

It is stipulated that the notary may have photostat copies made of these prints, to be substituted, with the full force and effect as the originals therefor, and copies of such photostats are to be sent to the solicitor for plaintiff and to solicitor for defendants in both of the patent cases, and the original prints delivered back to Mr. Mead.

Q. Referring again to blue-print 3-E-22, namely, Defendants' Exhibit "M-75," I will ask you to

(Deposition of Daniel W. Mead.)

please state whether at the time you received this blue-print you understood its showing and disclosure. [220]      A. I did.

Q. Will you please point out therein, particularly with relation to the large vertical sectional view at the right hand side of the print, the several parts and features shown at the bottom thereof.

Mr. LYON.—That's objected to as irrelevant and immaterial, as being subsequent to the date of filing of the Layne application for the patent in suit; as indefinite and uncertain, the witness not having fixed even approximately the date when he first saw the blue-print referred to; and as incompetent, not the best evidence, the print speaking for itself, no foundation laid for the introduction of secondary evidence.

Mr. BLAKESLEE.—We stand upon our several defenses in this case, as before pointed out.

A. The section referred to, this lower portion, shows a discharge pipe screwed into a flange connected with the discharge ell and pulley-frame used to operate the pump. The drawing also shows a shaft about  $2\frac{1}{4}$  inches in diameter running downward from the pulley-frame through a 4-inch casing which separates the shaft from the discharge waters from the pumps below. The 4-inch casing together with the 9-inch casing afford an annular space through which the discharge waters pass from the pumps without contact with the shaft. The whole construction is shown setting over a 15-inch well casing, and is the construction utilized in the case of the original Pabst pump and essentially the same as



(Deposition of Daniel W. Mead.)

was used in the other pumps first installed at Lake Geneva and Waterloo and Green Bay. [221]

Q. At the time you received this print or one like it, that you have told us about, what did you understand these parts surrounding the shaft just above the discharge elbow to be?

Mr. LYON.—Same objections.

A. They were packing rings and packing spaces used to prevent the discharge of water along the shaft and to keep the 4-inch casing clear from water at the upper end of the 4-inch casing.

Q. And how in respect to any grit, sand or matter in suspension in the water, or solid content?

Mr. LYON.—Same objection and as leading and suggestive.

A. Well, necessarily if it would keep the water away it would also keep everything that is in the water away from the shaft and away especially from the bearings of the shaft.

(By Mr. LOFTUS.)

Q. Mr. Mead, can you state whether or not it was the custom of the Byron Jackson Machine Works to affix an order number to all drawings pertaining to each job?

Mr. LYON.—That's objected to as leading and suggestive, and upon the further ground that it is incompetent, no foundation laid, the witness not qualified to answer the question.

A. My recollection was that they had an order number with each job. I can't say that it was customary, only to the extent of my own personal

(Deposition of Daniel W. Mead.)

experience with them. They did a great deal of work for other people.

Q. Can you ascertain from data or blue-prints appearing here in evidence what was the order number of the first Pabst installation? [222]

Mr. LYON.—Same objection as last noted, as assuming facts not testified to by the witness: that such Pabst installation had any order number, and upon the further ground that the exhibits speak for themselves.

A. The Pabst pump had an order number, E. 1896-5108.

Q. Referring again to Defendants' Exhibit "M-44," namely, the copy of the Byron Jackson letter of April 29th, 1903, to you, can you state whether or not the blue-print Defendants' Exhibit "M-75" is identical with one of the blue-prints or drawings received by you in connection with said letter?

Objected to as leading and suggestive and as having already been answered by the witness, as incompetent, no foundation laid, calling for the conclusion of the witness, and not the best evidence.

A. Well, I do not note any drawing number on here, and I should only feel that that was one of the drawings received at this time through the date on the drawing of April 25th, 1903, at which time Mr. Jackson had expected to furnish me all of the drawings of the pump, and he failed to do that, and sent a few drawings with this letter, one of which he stated had just been received, and that was the drawing as I recall it that was dated April 28th. I

(Deposition of Daniel W. Mead.)

presume this of April 25th was also included, but I wouldn't want to state that as an absolute fact.

Mr. LYON.—We move to strike the answer from the record and exclude it from consideration upon each of the grounds stated in the objection, and upon the further ground that it is apparent that it is only the reasoning, deduction and opinion of the witness, a mere argumentative answer, and [223] not a statement either of recollection or of fact.

Q. Do you recall whether or not there was more than one drawing received at the time you received the letter Defendants' Exhibit "M-44"?

Mr. LYON.—Same objections as last noted.

A. On further perusing the letter I find that he mentions "Discharge head and pulley-frame." I would say in that connection that to the best of my knowledge and belief I have that drawing in my office that was received at that time. I think so from the fact that he states here, "I did not think it necessary to show this in section." This drawing "M-75" does show it in section, whereas the drawing that I have in my office does not show it in section. I can produce that one that I have in my office if desired. I didn't think it was of any importance, but it lies right there in my office now.

(By Mr. BLAKESLEE.)

Q. When was that received by you, the one that's at your office?

A. Well, I think from this letter that that was undoubtedly received at this time and that this other one was forwarded later, when he got me to go into more detail.

(Deposition of Daniel W. Mead.)

Q. Do you know of the existence or location of a concern known as the Northern Electric Manufacturing Company?

A. There used to be such a concern here. I don't know whether it exists yet under that name or not.

Q. Did you ever have anything to do with it in connection with pumps?

A. No. There was a pump of this general description installed [224] and in operation here in the city water works, but I haven't any idea whether Jackson furnished it or whether it was the American Well Works of Aurora. I think they did furnish one, and they had an old Woods pump here for a while.

Q. When did you see such a pump as that in the city water works here?

A. Well, we took a pump of that sort out during this last year—had it taken out. They are using air here now.

Q. Displacement pumps?

A. No; with air lift.

Q. I show you a further blue-print marked 1-E-71 and ask you if you have ever seen such a print as that before?

Objected to as leading and suggestive.

A. Yes, I recognize that as one of the detailed drawings furnished of the Pabst pump, showing an enlargement of one of the single units of the series pump.

Q. When did you see such a print as that first?

A. The nearest I could locate it was some time during 1903, prior to the installation of the pump.

(Deposition of Daniel W. Mead.)

I couldn't say just what date.

Q. At the time you saw the print like this did you understand its disclosures? A. Why, yes.

Q. What did you then understand to be the part designated in the center of this view on this blue-print "Turned oil ring"?

Mr. LYON.—That's objected to as irrelevant, immaterial and incompetent, and too late to have any bearing upon the issues of this case.

Mr. BLAKESLEE.—We wish to point out again that our [225] defense is that we have never used such a thing as attempted to be shown in the Layne patent in suit, nor has anybody else, but that we are utilizing substantially the Byron Jackson invention as developed in our proof.

A. I understood by the term "turned oil ring" that that was a groove turned in the bearing metal at the lower end of the shaft in order to admit lubrication through a pipe from the surface.

Q. From whom did you receive the blue-print which you say you received in 1903, like this print last discussed?

A. From the Byron Jackson Machine Works.

Mr. BLAKESLEE.—We offer in evidence this blue-print last discussed, namely, 1-71, as Defendants' Exhibit "M-94."

Mr. LYON.—Objected to as irrelevant, immaterial and incompetent; no foundation laid.

Q. As to any of these pumps you have told us about, of the Byron Jackson deep well enclosed shaft type, including the Waterloo, Green Bay, Geneva Lake and Pabst pumps—if the same were

(Deposition of Daniel W. Mead.)

visited now and were found running or installed, would it be possible, from your knowledge, to visually inspect and explore the shafting and enclosing casing, bearings and lubrication system of the same.

Objected to as leading and suggestive.

A. I think it would be wholly impracticable. I doubt if the owners or users would permit such an examination, as they are essential features of the water works system and could not be shut down for examination without serious jeopardy to the interests of the water companies or of the cities [226] owning them and such an examination probably wouldn't be permitted. Of course I can't speak authoritatively on that, except from my own knowledge of their use.

Q. After the installation of the first Pabst Brewing Company Byron Jackson pump construction at Milwaukee, concerning which you have testified, why did you continue to specify these Byron Jackson small bore deep well pump installations for other companies and interests?

A. Well, they constituted the best available means to get a large quantity of water out of these smaller wells with the least first cost of installation and the smallest operating expense to anything that was then available.

Q. Please mention again which of these four installations included in the last question you personally saw in operation after installation?

A. Well, I saw the Waterloo pump a number of times and the Green Bay pump numerous times, the last time being last summer.

(Deposition of Daniel W. Mead.)

Q. The same pump that was first installed there?

Objected to as leading and suggestive.

A. Yes and no. The upper portion, drop pipe, shafting, etc., were the same, but during last year they had purchased new pump parts; that is, the series pumps, had taken out the old ones and had substituted the new ones during last year. The old ones had worked up to last year: about fifteen years—or fourteen years.

Q. By pump parts do you mean the propellers, etc.?

A. Propellers and casings.

Objected to as leading.

At this point a messenger has just produced a [227] blue-print sent for by the witness, and upon inspection thereof the witness states as follows:

The WITNESS.—The blue-print just received is not the blue-print received by me from the Byron Jackson Machine Works in 1903, but was a print received at a later date and for a different purpose.

Q. Then have you any further drawing at your office or in your files such as you spoke of a few moments ago?

A. No, I have not.

Q. Please state within your knowledge how many installations you have seen, or of your own knowledge have known of, since 1902, of the enclosed shaft type, such as you have discussed in your testimony in describing and discussing the Waterloo, Green Bay, Geneva Lake and Pabst installations?

Mr. LYON.—That is objected to as leading and suggestive and also as confusing, there being material differences so far as the issue of this case is concerned between the particular installations re-

(Deposition of Daniel W. Mead.)

ferred to in the question; and as calling for the conclusion of the witness, incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, not the proper method of proof.

Q. Do you understand the question? A. Yes.

Q. Then please answer.

Mr. LYON.—Same objection.

A. There were nine installations made in connection with the four places mentioned. I also know that the Schlitz Brewing Company of Milwaukee later installed one or more units of [228] this same type. I also heard of a variety of others, but the location and date of installation are not sufficiently clear in my mind to be able to make any definite statements concerning them.

Q. Did you have anything to do with the ordering, consulting or engineering incident to the Schlitz installation you have spoken of?

A. My recollection is that I advised Mr. Schlitz—not Mr. Schlitz, Mr. Uihlein, who represents the Schlitz estate, concerning the installation of one of the pumps, but I took no active part in ordering it, nor have I any recollection of ever seeing it in. I was informed that it was put in and worked satisfactorily.

Mr. LYON.—We move to strike all the testimony of this witness in regard to the Schlitz installations from the record and exclude it from consideration, on the ground that it is incompetent hearsay, of which the witness has no personal knowledge.



(Deposition of Daniel W. Mead.)

Q. What Schlitz company was this and where located, please?

A. I believe the name is the Schlitz Brewing Company, located at Milwaukee, Wisconsin, and they were people who were my clients and for whom I installed a pumping plant of about twelve million gallons a day capacity.

Q. And in advising them to install such Byron Jackson enclosed shaft pump, did you or did you not make any reference to the prior installation which you have told us about that was made for the Pabst Brewing Company of the same town?

Objected to as leading and suggestive and assuming facts not testified to by the witness. [229]

A. It was through their knowledge of the Pabst installation that they first conceived the idea of installing this unit for themselves, and on account of the success of the Pabst installation that they did order and install a unit for their own brewery.

Q. Do you or do you not know whether they used the water developed and delivered by the Schlitz installation for such purposes as the water delivered by the Pabst installation was used?

Objected to as leading and suggestive.

A. I don't know what their use was.

Q. What, Professor, is your view as a hydraulic engineer as to the practicability and feasibility of using the waters developed from the geological formations you have told us about underlying the surface strata in Wisconsin, Iowa, Minnesota and Illinois, to wit, using such water for lubrication of pump bearings and shaft bearings.

(Deposition of Daniel W. Mead.)

Mr. LYON.—That is objected to as irrelevant and immaterial and as calling for the conclusion of the witness, having no bearing upon the issues of this case, and as being an attempt to take alleged expert testimony, which is not within the motion of the defendants in E-42, or of the order of the special master, nor has there been any order in either of these cases permitting the taking of a deposition of an expert.

A. The use of water for lubricating bearings in such pumps has not been found satisfactory within my knowledge.

Q. What is the nature of that water developed in the territories which I have mentioned, with respect to its mineral or other content or matter in suspension? [230]

Mr. LYON.—Same objections as last noted.

A. Most of the water is fairly highly mineralized, containing considerable quantity of bicarbonates of magnesia and lime and some of the similar substances in solution, which, when approaching the surface and therefore relieved of the pressure of superincumbent water lose a certain quantity of free carbonic acid gas and thereby drop a certain amount of the bicarbonates that are held in solution only through the presence of a carbonic acid gas. These wells also frequently carry considerable quantities of sand when pumping at a high rate, on account of the water entering through the sandstone disintegrating the sandstone and the velocities of water being sufficient to sustain the sand and to bear it to the surface.

(Deposition of Daniel W. Mead.)

Q. From the standpoint of efficiency and operativeness and general practicability, please make a brief statement as to your engineering opinion and knowledge of the performance of enclosed shaft small bored well pumps, centrifugal pumps, and accompanying features, as furnished by the Byron Jackson Machine Works and installed in the many wells you have told us about.

Mr. LYON.--Same objection as last noted on the record. The further objection is urged that it is not apparent from the question what is meant by an enclosed shaft in the question, as the same does not refer to the several installations to the same thing, nor embody the issue in this case.

A. The pumps of the general character used by the Pabst Brewing Company, the Lake Geneva Water Company, the Waterloo Water Company, and the Green Bay Water Company have proved fairly efficient and economical in operation, and sufficiently flexible in their character to make them very satisfactory and desirable for the smaller communities, where a sufficient [231] quantity of water can be obtained by the use of one or two of such installations. I have not found such installations very satisfactory for larger communities, where numerous units had to be installed, and where in consequence the installation of such numerous units complicated the waterworks system and added to the expense of operation and maintenance.

Q. But for the purposes and usages for which they are intended and adapted and in which you have known them to operate, what have you to say

(Deposition of Daniel W. Mead.)

as to their practicability, dependability, feasibility and general efficiency?

A. They have been very satisfactory in the four places I have mentioned, and some of the places of which I know.

Cross-examination by Mr. LYON.

Q. Did you ever at any time see this first Pabst pump which was furnished to the Pabst Brewing Company?

A. I don't recall definitely ever having seen it, either before or after installation. I think I may have seen it after it was installed, but I wouldn't say.

Q. If you did, how long after it was installed was it that you saw it?

A. I think very soon after. I have been in Milwaukee more or less and would naturally through curiosity have gone to see it, but I can't remember definitely the date or the facts.

Q. You are sure that installation gave perfect satisfaction?

A. No, I know it did not give perfect satisfaction.

Q. Are you aware that changes were made in it?

A. Yes, I was told so by the engineer, that they had some trouble with the bearings and some trouble concerning the oil, but I never knew the nature of those. [232] I was advised that they had changed the bearings.

Q. You say the engineer; you mean Mr. W. Clasmann? A. Yes, I mean Mr. Clasmann.

Q. You mean the Mr. W. Clasmann who appeared here yesterday morning?

(Deposition of Daniel W. Mead.)

A. Yes, whom I met here yesterday morning.

Mr. BLAKESLEE.—We object to the implication that Mr. Clasmann appeared here, unless counsel means that he physically was present here.

Mr. LYON.—I mean that he was physically present here, Mr. Blakeslee, and at your request, and that you interviewed him for the alleged purpose of taking his deposition, and adjourned the proceedings of yesterday for that purpose, and then did not take his deposition. I wanted to identify Mr. Clasmann as the same man that the witness was referring to as the engineer, so that there would be no mistake as to that.

Mr. BLAKESLEE.—Mr. Clasmann was here yesterday in this city. We have never seen him before. We did talk with him, and we considered calling him as a witness. He stated that he was in town likewise at the request of plaintiff, and that ended the matter as far as we are concerned.

Mr. LYON.—As to whether he stated that he was in town at the request of plaintiff or not, I have no knowledge and no opportunity of knowledge; but will state on the record that no one on behalf of the plaintiff ever requested Mr. Clasmann to appear here or anywhere else, and that his appearance here was, according to counsel's [233] statement, on behalf of the defendants.

Mr. BLAKESLEE.—Counsel should be sworn if he wishes to testify further about this. If he wishes to produce Mr. Clasmann, he can do so. That is his affair.

Q. You say, Mr. Mead, that Mr. Clasmann stated

(Deposition of Daniel W. Mead.)

to you that they had some trouble with the bearings on this first Pabst pump installation. Do you remember what he said in regard to the trouble with those bearings?

Mr. BLAKESLEE.—We object to the question on the ground that on its face it can only call for hearsay and not the best evidence, not the proper method of proof, not cross-examination.

A. No, I do not recall that he went into any detail in regard to the trouble. It was simply mentioned incidentally to me when Mr. Clasmann was in my office a good many years after this installation was put in. I was then inquiring whether the installation was still in operation and what efficiency had been obtained, if any test had been made. He had a little handbook in his pocket, from which he gave me information about an efficiency test that he said he had made, and incidentally said they had had some trouble with the bearings; and I believe mentioned some trouble with oil, which was very objectionable in the brewing business. Mr. Clasmann at that time had left the Pabst company and was in business for himself and we were talking about something which had occurred a considerable while before and didn't discuss it in any great detail. I was after general information. He said the pump was still running the last he had known of it.

Mr. BLAKESLEE.—We move to strike out the answer [234] to the last question on the grounds of the objection and each thereof.

Q. Did Mr. Clasmann in that interview tell you that they had removed the tube or casing that sur-

(Deposition of Daniel W. Mead.)

rounded the drive shaft and the bearings?

Mr. BLAKESLEE.—The same objection as last noted.

A. He did not. I wasn't aware that they had done so. If that's the fact I don't know it, either by information from him or from any other source.

Q. You don't know, then, whether that surrounding casing and bearings were removed from that installation, do you?

A. I judged from what he said that the bearings had been removed, and some different form or some modification of the original bearings had been substituted. But to the best of my knowledge he never mentioned to me anything about the removal of the interior pipe.

Q. When was it according to your best recollection, Mr. Mead, that you had this conversation with Mr. Clasmann?

A. I should think it was about 1916 or 1917.

Q. And where?

A. At my former office, 530 State Street.

Q. In the city of Chicago, Illinois?

A. In the city of Madison, Wisconsin.

Q. About what time of the year, do you remember?

Mr. BLAKESLEE.—We object as immaterial.

A. I haven't any idea about that.

Mr. BLAKESLEE.—Objected to on the ground that it is immaterial on the ground of each of the objections last urged. [235]

A. I haven't any idea in regard to the date. Mr. Clasmann, who was selling certain boiler equip-

(Deposition of Daniel W. Mead.)

ment, came into my office to see if we were in the market for anything of that sort, and as a matter of fact I didn't recollect him at first, his face was familiar and he introduced himself to me, and recalled the fact that I had been in contact with him in connection with the Pabst installation, and then I remembered him very clearly. It was that introduction that made me ask about this installation, which I hadn't seen for years, if I had ever seen it. I think I have seen the thing, but I don't recall any date.

Q. Then, if I understand you correctly, this interview that you had with Mr. Clasmann, and to which you have been referring, was the first time that you had seen him after the Pabst installation, was it?

Mr. BLAKESLEE.—Same objections.

A. Well, I wouldn't want to say that. I might possibly have seen him within a year or so after, but this was the first time I had seen him after the machines had been in long use; and my inquiries were directed more to ascertain how satisfactory the machines had been, both as to the efficiency, if a test had been made, and the longevity of the installation as a pumping installation.

Q. You were first called for consultation with the Pabst Brewing Company with regard to this particular well in which this first Byron Jackson installation was made in the fore part of 1903, weren't you?

A. That's my recollection. My letters and correspondence will show that.



(Deposition of Daniel W. Mead.)

Q. Your file that you let me look through shows a report under [236] date of April 22d, 1903. Was that your report after having been so called in for consultation in regard to the pumping apparatus for this well?

A. This was a report made as indicated on April 22d, and was the result of my first views of the situation.

Q. And the date of that report is April 22d, 1903? A. It is.

Q. I believe that you testified that you were in San Francisco the last two days of May and the first few days of June, 1902, and at the plant of the Byron Jackson Machine Works. Is that correct?

A. It is.

Q. When did you next see Mr. Byron Jackson?

A. I don't recall.

Q. Did you see him at any time between that date, the first part of June, 1902, and this first Pabst installation?

A. I don't think so, I think our connections were entirely by correspondence.

Q. Mr. Mead, are you prepared to state positively that Defendants' Exhibit "M-92" and "M-93," the blue-prints which you produced here marked 1-D-14 and 3-B-41, were not delivered to you by Mr. Jackson while you were at San Francisco the last two days of May or the first few days of June, 1902? A. No, I couldn't state.

Q. Then so far as your present recollection enables you to state, these two prints last identified, might have been handed to you by Mr. Jackson

(Deposition of Daniel W. Mead.)

while you were then in San Francisco?

A. Possibly so.

Q. Did Mr. Jackson show you that pump while you were there that [237] time—or do you remember?

Mr. BLAKESLEE.—We object to that as misleading and indefinite. There is no pump before us here.

Q. When I say “that pump” I mean the pump corresponding to these two prints just identified.

A. I don’t recall that he did. I don’t think I ever saw it. I wouldn’t say positively that I never did, but I have no recollection of it. I think I would have remembered it if it had been shown to me. I have seen so many installations in San Francisco of one kind and another that it is asking too much of my memory to ask me to that extent.

Redirect Examination by Mr. BLAKESLEE.

Q. Now, Professor, what was the occasion of Mr. Byron Jackson sending you the blue-print which is Defendants’ Exhibit “M-6” and the letter accompanying same?

Mr. LYON.—That is objected to as not redirect examination.

A. They were sent to me in reply to my inquiry as to whether it was practicable to build a deep well centrifugal pump that would raise the water from deep wells for waterworks purposes, and whether Mr. Jackson would undertake to build such pump for any plant that I might advise such construction.

Mr. LOFTUS.—Q. What is the purpose of this

(Deposition of Daniel W. Mead.)

report of April 22d, 1903, which counsel for plaintiff showed you?

A. About six or seven years prior to my visit to Milwaukee I had built a shaft and tunnel system for the city of Rockford, [238] developing a considerable quantity of artesian water. In our discussion of the general waterworks conditions at or near the plant of the Pabst Brewing Company, the Rockford installation was mentioned, and the question was raised as to whether or not it might be a method which the Pabst people could utilize for developing water supply. This is a preliminary report making a general estimate, not on detailed plans, showing a somewhat large cost of construction. It was not a plan which was recommended, but simply a plan which was considered as one of the possible methods of developing a supply. This was my report to Mr. Pabst and the project was dropped, as I recall it, after this report.

Q. Did that report or the subject matter of that report have anything to do with the wells in which the Byron Jackson pumps were installed?

A. No, nothing whatever.

Q. Prior to the date of this report had you been consulted by the Pabst Brewing Company?

A. I had been in Milwaukee on March 17th and had consulted with Mr. Pabst on that date. This letter is dated April 22d, 1903, and is therefore nearly a month after my consultation with Mr. Pabst.

Q. Prior to that time had you been consulted by them on other matters aside from artesian wells?

(Deposition of Daniel W. Mead.)

A. No, I had never met Mr. Pabst until March 17th. I might add that I really went there at that time, not at the request of Mr. Pabst, but at the request of Mr. Gray who had a contract. Mr. Gray introduced me to Mr. Pabst, and Mr. Pabst finally [239] asked me to act for him in connection with the development of water supply.

Recross-examination by Mr. LYON.

Q. Do I understand you to say, Mr. Mead, that prior to March 17th you had never met Mr. Pabst?

A. That is the best of my recollection. Now, I simply drew that conclusion from the statement here in this letter that in company with Mr. William Gray I visited Milwaukee on March 17th. I might have been up there before that date, but I suppose the correspondence there would disclose the fact. I can't remember those dates.

Q. You have no recollection of Mr. Pabst calling upon you at your office prior to March 17th, 1903?

A. I don't now recall that Mr. Pabst was ever in my office. He might have been there a dozen times, but I don't remember.

Q. I show you a letter from your file, on the letter-head of the Pabst Brewing Company and signed G. G. Pabst, dated February 19th, 1903, in which he asks you to state the time when it would be convenient to meet at your office, and ask you if that refreshes your recollection at all.

A. No, this don't refresh my recollection at all, except that it shows that I was in communication with Mr. Pabst in February, and I can't recall now that he ever came to my office. This apparently

(Deposition of Daniel W. Mead.)

asks whether it would be more convenient for me to come to Milwaukee or for their representative to call. My recollection would be that Mr. Pabst never was in my office. Now, I am not positive of that.

Q. I show you a letter dated February 24th, 1903, from Mr. Pabst. Please read that and state whether after reading this letter [240] of his to you of that date, to the effect that accompanied by their mechanical engineer he would reach your office about eleven o'clock Thursday morning, whether it refreshes your recollection.

A. No, it don't. I should assume from this letter that he came, but I don't remember. I haven't the faintest recollection of his ever being in my office.

Q. Isn't it a fact, Mr. Mead, that except as these matters that have been inquired about here are of record in blue-prints and letters and documents, you haven't a distinct recollection of all of the details?

Mr. BLAKESLEE.—We object to that question as calling for a conclusion as to the weight of the testimony, putting an arbitrary *omnibus* interpretation upon the testimony of the witness, not calling for a statement of facts, attempting to short-cut cross-examination by a single question, and not the proper method of proof, not cross-examination, incompetent, irrelevant and immaterial.

A. I would like to answer that fully and tell you just exactly, if I may. I think that is true when you say "all of the details." But I have a very distinct recollection concerning the general features of this pump, because the pump was built at my

(Deposition of Daniel W. Mead.)

request and in accordance with my suggestion, and was the first pump of the kind that I ever know of being installed, and I was very much impressed with the value of that kind of pump, and it left a very clear impression on me of the general outline of that pump. Now, as far as dimensions and all these things that constitute details are concerned, I confess that they are hazy. As I have said, I don't [241] remember all these dimensions, but as to the arrangement of discharge pipes, and of enclosed shafts, and the arrangement in general for separating the shaft from the discharged water, and to permit of the oiling of the interior bearings and keeping the water away from them—those matters were impressed on me very, very distinctly by my study of the situation and my conversations and correspondence with Mr. Jackson. I believe I could swear to those as long as I live, because it was the first pump of the kind and I was very much interested in it, not only as an engineer, but as a development in the line of pumping machinery in which I was greatly interested.

Q. You mean this first Pabst installation pump was the first one of the kind?

A. As far as my knowledge goes, yes—of a series pump, you understand.

Q. The enclosed line shaft feature and bearings and so forth that you have referred to?

A. Yes, the first one I had ever seen. I couldn't say; there might have been a hundred of them made somewhere else.

Deposition closed.

DANIEL W. MEAD. [242]

Mr. LOFTUS.—Notice is hereby given counsel for plaintiff that we shall proceed to Chicago, pursuant to notice heretofore given, and take the deposition of Mr. John W. Alvord, beginning at two P. M., Wednesday, February 11th, at the office of C. J. Loftus, 14th floor, Marquette Building. [243]

State of Wisconsin,  
County of Dane,—ss.

I, Arnold R. Petersen, a notary public within and for the county of Dane and State of Wisconsin, commissioned and sworn according to law, do hereby certify that the foregoing deposition of Daniel W. Mead was taken before me in the above-entitled suit as in the foregoing record thereof set forth; that said deposition was commenced at 10 o'clock A. M. on February 9th, 1920, at the office of Burr W. Jones, Esq., in the Badger Block in the city of Madison, county of Dane, State of Wisconsin; that the parties to said suit were represented by counsel as in the foregoing record set forth; that the taking of the deposition was continued as in said record set forth; that said record contains a true and correct statement of all proceedings had and taken during the taking of said deposition; that said witness Daniel W. Mead, was by me duly sworn according to law to testify the truth, the whole truth and nothing but the truth in said cause; that pursuant to the stipulation of counsel for the respective parties the said deposition and the proceedings thereon were taken correctly in shorthand by Edward H. Smith and by him reduced to type-

writing, under my supervision and direction; that the said record contains a truthful and correct statement of all questions asked, answers given by the witness, and objections and proceedings had during the taking of said deposition; that said witness duly signed the said deposition in my presence after reading over the same; that the various exhibits offered in evidence and not copied in the record pursuant to the stipulation of counsel are forwarded herewith and made a part of this deposition, having [244] been identified by the titles indicated in the foregoing record of said deposition. That I am not interested, directly or indirectly, in the subject matter of said suit, nor a party thereto, nor connected by blood or marriage with any of the parties to said litigation.

Dated February 18, 1920.

[Seal]

ARNOLD R. PETERSEN,  
Notary Public, Dane County, Wisconsin. [245]

State of Wisconsin,  
Dane County,—ss.

I, Herbert F. Hansen, Clerk of the Circuit Court in and for the County of Dane and State of Wisconsin, aforesaid, the same being a court of record having a seal, do hereby certify that Arnold R. Petersen, Esquire, and by and before whom the foregoing deposition was taken, was at that date thereof a notary public within and for said state, residing in said county, duly commissioned and qualified, and authorized by the laws of said State of Wisconsin to take and certify such depositions and to take and certify the acknowledgment of proofs of deed therein; and that the same is in due



form of law and is taken in accordance with the laws of the State of Wisconsin. I further certify that I am well acquainted with the handwriting of said notary public and verily believe his signature to the foregoing to be genuine.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said court, at Madison, Wis., this 19th day of February, A. D. 1920.

[Seal]

HERBERT F. HANSEN,

Clerk. [246]

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(Title of Court and Cause.)

**Notice of Taking Deposition.**

To Plaintiff Above Named and to Frederick S. and Leonard S. Lyon and Wm. K. White, Its Attorneys:

Please take notice that the defendants herein will take the testimony of D. W. Mead, State Journal Bldg., Madison, Wisconsin; William Clasman, 120 Wisconsin St., Milwaukee, Wisconsin, and possibly others; and J. W. Alvord, of Chicago, Illinois, and possibly others, each and all of whom reside more than one hundred (100) miles from the place of trial herein and more than one hundred (100) miles from any place at which the District Court of the United States for the Northern District of California is appointed to be held by law, for use at the final hearing on behalf of the defendants; the testimony of the said D. W. Mead before F. M. Wylie, Esq., a notary public in and for the county of Dane, in the city of Madison, State of Wisconsin, who is not of counsel nor interested in this cause, at the

office of said D. W. Mead, State Journal Bldg., in said city, beginning at 10 o'clock A. M., February 9th, 1920, and thereafter from day to day as the taking of the deposition may be adjourned.

At the conclusion of the taking of said deposition of said D. W. Mead I shall proceed, by ordinary means of travel, to Milwaukee, Wisconsin, and thereafter proceed to take the deposition of said William Clasman, and possibly others, before the Clerk of the United States District Court for the Eastern District of Wisconsin at the office of the said Clerk in said County of Milwaukee, in the city of Milwaukee, State of Wisconsin.

At the conclusion of the taking of said deposition or depositions of said William Clasman and others I shall proceed, by ordinary means of travel, to Chicago and there take the [247] deposition of the said J. W. Alvord, before I. V. Curran, a notary public in and for the county of Cook, in the city of Chicago, State of Illinois, who is not of counsel nor interested in this cause, at the offices of Parkinson & Lane, Marquette Bldg., in said city of Chicago; and such depositions will be so taken in accordance with the provisions of Sections 863, 864 and 865 of the Revised Statutes of the United States and the Equity Rules; said depositions being taken concurrently with the taking of like depositions in a cause copending in the United States District Court for the Southern District of California, of this same plaintiff against the American Well & Prospecting Company et al., and taken at such time and in such manner, and in such order, that the testimony deduced by said depositions on behalf of these de-

defendants shall coincide with the manner and time of procedure in the examination by the said defendants in the said American Well and Prospecting Company's suit.

You are invited to appear and cross-examine.

CHAS. E. TOWNSEND,

CHAS. M. FRYER,

WM. A. LOFTUS,

Attorneys for Defendants.

Dated January 29th, 1920.

Receipt of copy of the within notice of taking testimony admitted this 29th day of January, A. D. 1920; reserving objections that *same indefinite*, unreasonable and not in compliance with New Equity Rules and all other objections.

F. S. LYON and

W. K. WHITE,

For Plaintiff.

[Endorsed]: Filed Feb. 25, 1920. W. B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [248]

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In the Southern Division of the United States District Court for the Northern District of California, Second Division.

EQUITY—No. 485.

INFRINGEMENT OF LETTERS PAT. 821,653.  
LAYNE & BOWLER CORPORATION, a Corporation,

Plaintiff,

vs.

WESTERN WELLS WORKS, INC., a Corporation et al.,

Defendants.

**Deposition of William Clasmann, for Plaintiff.**

Deposition of William Clasmann, taken in the above-entitled suit on behalf of the plaintiff, pursuant to the attached notice, commencing at the hour of ten o'clock in the forenoon, on Saturday, February 21st, 1920, at the office of William Clasmann, Room 620 Wells Building, in the city of Milwaukee, county of Milwaukee and State of Wisconsin, before W. Schultz, a notary public in and for Milwaukee county, State of Wisconsin.

Present: FREDERICK S. LYON, Esq., on Behalf  
of the Plaintiff.

WM. A. LOFTUS, represented by CLAR-  
ENCE J. LOFTUS, Esq., Appearing  
for the Defendant.

Whereupon the following proceedings, were had:

Mr. LOFTUS.—The taking of the deposition of William Clasmann in this case is objected to for want of proper notice, for the further reason that the notice was served or attempted to be served while counsel was attending on a hearing, taking depositions in this case, and for the further reason that it is being taken without the order of the master. [249]

WILLIAM CLASMANN, being first duly sworn according to law, testifies as follows:

Direct Examination by Mr. LYON.

Q. Your name is William Clasmann?

A. William Clasmann.

Q. You reside at Milwaukee, Wisconsin?

A. 686—51st Street.

(Deposition of William Clasmann.)

Q. What is your business, Mr. Clasmann?

A. At the present time I am manufacturers' agent, selling conveying machinery, furnace work, and so forth.

Q. Approximately how old are you?

A. Fifty-five years.

Q. At any time in the past were you connected with the Pabst Brewing Company of Milwaukee, Wisconsin?

A. I was connected with the Pabst Brewing Company somewhere around 12 years.

Q. In what capacity?

A. In the capacity as chief engineer.

Q. I show you a paper and ask you if you have ever seen it before?

(Document handed to witness and examined by him.)

A. This is a telegram I received some time ago, which is addressed to me and signed Charles E. Townsend.

Q. About when was it that you received that telegram?

A. First part of February; it is dated the 5th of February. [250]

Q. This year?      A. This year.

Q. Upon receipt of that telegram, did you make any response thereto in any manner?

A. I did not respond to this telegram; that is, I did not know whether I could comply with the wishes of the people at the time and before I got my mind made up Mr. Jones from Madison, of Jones & Schubring, telephoned long distance and asked me

(Deposition of William Clasmann.)

to appear in Madison on Monday—I forgot the date—two weeks ago I guess it was.

Q. The 9th? A. Yes.

Q. Monday, the 9th of February this year?

A. Yes, that is correct.

Q. Whom did you meet at that time?

A. I went into the office of Jones & Schubring at somewhere around 9 or 10 o'clock in the morning and I met Mr. Blakesly, met Mr. Lyon and met Mr. Jones and the agreement was made that I should—my testimony should be taken at 2 o'clock in the afternoon.

Q. Was there another gentleman there with Mr. Blakesly?

A. There was another gentleman there with Mr. Blakesly. I believe it was Mr. Loftus.

Mr. LOFTUS.—I move to strike out the answer [251] as immaterial; it has no bearing on the issues in the case and in the Los Angeles case it is certainly not rebuttal.

Mr. LYON.—Q. Before 2 o'clock of February 9th, 1920, did you have any talk with Mr. Raymond Ives Blakeslee or Mr. William A. Loftus?

A. Mr. Blakeslee and Mr. Loftus—I did not remember the names—the name “Loftus” has come—the name “Loftus” I do not remember but I presume that was the gentleman and the other gentleman I said, they invited me to lunch to have a little talk with me.

Q. And did you go to lunch with them and have a talk with them?

A. I did go to lunch with them at the Park Hotel.

(Deposition of William Clasmann.)

Mr. LOFTUS.—I make the same objection to this testimony.

Mr. LYON.—Q. And what was discussed during that luncheon?

Mr. LOFTUS.—That is objected to as immaterial and having no bearing on the issues here.

A. During that luncheon Mr. Blakeslee went over the proposition and asked me what I knew about this particular case and what success we had with the pumps in question. [252]

Mr. LYON.—Q. What pumps do you mean?

A. The Jackson pumps that were operated at the Pabst Brewing Company.

Q. Did you make any statement during that conversation as to what you knew?

Mr. LOFTUS.—Objected to as irrelevant, calling for hearsay and having no bearing on the issues here.

A. Yes, I made a statement—clear statement of all I knew about that, as far as he asked me.

Mr. LYON.—Q. What did you tell him?

A. I told him—

Mr. LOFTUS.—I make the same objection to that testimony.

A. I told him that we bought and installed a pump from Jackson and we operated it under a guarantee and that the pump broke down before the time of guarantee was over and that the trouble of this breakdown was caused by poor construction of the inner casing which was supporting the shaft bearings.

Mr. LOFTUS.—I move to strike out the answer.

(Deposition of William Clasmann.)

Mr. LYON.—Q. Subsequent to that conversation were you called upon [253] to testify at Madison?

Mr. LOFTUS.—Enter the same objection for us.

A. I was called upon to testify by the telegram that was just shown here and by Mr. Jones over the telephone.

Mr. LYON.—Q. Well, was there anything said in that conversation at luncheon between Mr. Blakeslee and yourself in regard to your testifying in that case at that time?

A. I told Mr. Blakeslee at the time that the Layne & Boller people had been after me and had gone over the case with me and that very likely they would have me to testify also.

Q. Did Mr. Blakeslee say anything in regard to your testifying in that case on behalf of his client at that time?

A. Mr. Blakeslee told me after he listened to my story that they did not want this testimony.

Q. Is that all he said?

A. And he told me that I might just as well take the next train and go home. I then told him that the other side would very likely want to put me on the stand and that they would take the testimony or get the testimony in some sort of way later and they might just as well submit to it now. Mr. Blakeslee then told me that he would not do that; that they would take their testimony [254] first and that there would not be any time and so on, and that he would not put me on the stand for the simple reason that it made a difference whether I was called by them or by the other party.



(Deposition of William Clasmann.)

Mr. LOFTUS.—I move to strike out the answer as irrelevant, immaterial and largely hearsay.

Mr. LYON.—Q. Did either Mr. Blakeslee, Mr. Loftus or anyone else pay or offer to pay your expense on that trip over to Madison or was there any conversation at this luncheon or on that day in regard thereto?

Mr. LOFTUS.—I enter the same objection.

A. Mr. Blakeslee told me if I would not testify for the other party they would pay the expense. If I was to testify for the other party then the other party could pay the expense of coming over there. I told him I did not care who paid the expenses or whether they were paid; that all I was after was my time; I wanted to get through and get away.

Mr. LYON.—Q. Have you any interest of any kind in the subject matter of this suit or are you interested in any manner with any of the parties to this litigation?

A. Not a particle to neither. [255]

Q. Have you any feeling of favoritism or prejudice for or against any of the parties?

A. I have no prejudice. All I want is to state the truth and give the Court and both parties the benefit of what I know.

Mr. LYON.—The telegram identified by the witness is offered in evidence and marked "Plaintiff's Exhibit, Clasmann Exhibit No. 1."

Mr. LOFTUS.—It is objected to as immaterial, as having no bearing on the issues involved, and in the Los Angeles case certainly not rebuttal.

(Deposition of William Clasmann.)

Document received and marked "Plaintiff's Exhibit, Clasmann Exhibit No. 1."

Mr. LYON.—Q. You have referred to a Byron Jackson pump or pumps which was installed by the Pabst Brewing Company. Was that while you were engineer for the Pabst Brewing Company?

A. Yes, the pumps were contracted and installed during the time I was engineer for the Pabst Brewing Company.

Q. When was the first of these pumps installed?

A. The first of the pumps was installed during 1903.

Q. At what time of the year?

A. Late in the year.

Q. Please tell us whether any representative of the Byron [256] Jackson Machine Works was present at the Pabst Brewing Company during such installation?

A. There was an engineer sent out from the Byron Jackson Works; I believe his name was Robb. The records and correspondence will verify whether I am right there or not. I believe it was Robb.

Q. Did you meet him?

A. Yes, I met him and in fact he worked with me or worked under my directions to some extent.

Q. Now, will you tell us—please give me a statement of the facts in connection with the installation of the first Byron Jackson Machine Works pump for the Pabst Brewing Company, telling me approximately when the installation was finished and what tests, if any, were made of the pump and how it operated as to efficiency, and so forth and

(Deposition of William Clasmann.)

what was its subsequent history?

Mr. LOFTUS.—Objected to as calling for a conclusion of the witness.

A. The pump was installed late in the year 1903; I do not remember dates; and was started up in either late 1903 or early in 1904; it was cold, and snow on the ground at the time when we began to run. The pump was a success from the start from all appearances; produced the guaranteed amount of water and operated well within the limits of efficiency guaranteed by Byron Jackson. The [257] objection at first to the water was that the pump brought up a lot of oil; this oil was the result of the lubrication of the shaft bearings driving the pump and for a while we pumped this water right in the yard running down the gutter of Chestnut Street in a sewer. The Byron Jackson Company was under a guarantee to operate this pump successfully, I believe it was for three months. While the oil bothered us, we had no means of eliminating it nor could we ask Jackson to run without it. We intended to run through our three months, and if it was successful to pay for the installation. The pump broke down after the biggest part of this test period had elapsed. I do not exactly remember what time was still left to finish the test run. And the pump was pulled out and we found that the inner casing supporting the shaft bearings had caused the trouble by shaking loose from its fastenings and breaking up, also breaking the shaft. The pump proper was in "A-1" condition. It was now a question of accepting or rejecting the installation,

(Deposition of William Clasmann.)

and, talking this thing over, we concluded that we could make the pump work, or, in other words, make the shafting from the ground down to the pump proper stand up some way or another. We concluded to accept the pump and relieve Jackson from further responsibility; but we feared that Jackson would [258] charge us an enormous price for additional pumps because, as far as we could see, they lost money on this installation. We asked for quotation on two more pumps, telling them that the acceptance of the first installation—

Mr. LOFTUS.—Just a moment. Are any of these things you are testifying about in writing,—when you asked for quotations, etc.?

A. How is that?

Mr. LOFTUS.—Were those asked for in writing,—those quotations,—any letters?

A. Most of that was done by wire.

Mr. LOFTUS.—Were these wires or letters sent out by you or by the Pabsts?

A. By the Pabst Brewing Company.

Mr. LOFTUS.—Which one of the Pabsts?

A. At the direction of Mr. Gustav Pabst.

Mr. LOFTUS.—I move to strike out all the testimony of this witness as not being the best evidence. That is all evidence relating to what was said and done by the Pabst Brewing Company relating to the purchase of this pump and the additional ones.

Mr. LYON.—(Addressing reporter.) Will you read the witness' last testimony so he can go on?

[259]

(Deposition of William Clasmann.)

(Testimony re-read by reporter. Witness continues:)

A. We asked for quotation on two more pumps, telling them that the acceptance of the first installation would depend upon the price of the additional pumps. This was an inquiry for pumps only. Shafting and discharge pipe we intended to furnish ourselves. The price quoted was satisfactory. The installation was paid for and the two new pumps ordered. The first of the two new pumps that we installed we used heavier inside tubing and tried to make this thing set up. Now, on the first pump—on the first installation, as soon as Jackson's man was off the ground, or perhaps during the time that he was there—I don't remember—we proceeded to use water for lubricant, so we could use the water pumped. The inner casing kept on giving us considerable trouble and the pumps had to be pulled out frequently. The second pump, in spite of the heavier inside tubing and the fact that we used flange couplings on the pipes, also gave us continuous trouble and it was some time between May and August of 1904 that we abandoned the inner casing entirely, used for discharge pipe lengths of eight feet long or about eight feet with a spider holding a bearing in between each pipe coupling. This arrangement worked satisfactory [260] and we have been able to after that to keep pumps down from one to three years.

Q. In this last arrangement, Mr. Clasmann, were the bearings open to the water being pumped?

A. In this last arrangement the bearings were

(Deposition of William Clasmann.)

open to the water of the well or the water being pumped lubricated the bearings.

Q. How did you use the water lubrication with this first Byron Jackson installation?

A. We used water lubrication the same as oil,—the same as Jackson used oil lubrication, with the only difference that we used more of it. We arranged a little filter and run city water through there from the top down.

Q. Can you produce any drawings or blue-prints which were made substantially at the time that you made these changes that you have referred to in these Byron Jackson pumps at the Pabst Brewing Company?

A. (Indicating.) There is a bunch of drawing laying right on the desk there, gentlemen, that might give us—throw some light on the subject.

Q. Will you take these several blue-prints, taking each one, and as you refer to it I will identify it, and tell us what they are and when they were made and so forth? [261]

A. Here is one blue-print dated May 9th, 1902, showing a dummy—

Mr. LOFTUS.—Were these made by you?

A. These blue-prints were taken off drawings which are on file at the Pabst Brewing Company.

Mr. LYON.—Q. Made at the time of the date?

A. The drawing has been made at the time. As you see, the dates are on the different ones.

Mr. LOFTUS.—Did you make the drawings?

A. The drawings were made under my direction. I did not make any drawings myself. They were

(Deposition of William Clasmann.)

made by men that worked in my department.

Mr. LYON.—Now, this first one you say was of a dummy?

A. The first one shows a dummy to measure the hole in the well.

Q. What was the purpose of the dummy?

A. To see that the well was in proper shape to receive the pump.

Mr. LYON.—This blue-print is offered in evidence, to be marked "Plaintiff's Exhibit Clasmann Exhibit No. 2."

Mr. LOFTUS.—That is objected to as immaterial and not properly identified and not rebuttal in the Los Angeles case. [262]

(Document marked "Plaintiff's Exhibit, Clasmann Exhibit No. 2.")

A. (Witness continues:) Now, here is a blue-print dated May 5th, 1904, copied—the tracing where this is made from is from Jackson's blue-print, as marked on here (indicating).

Mr. LOFTUS.—I move to strike that part of the answer as a mere conclusion of the witness.

Mr. LYON.—Q. By whom was this tracing from which this blue-print was produced, made?

A. It was made by one of my men in the office of the Pabst Brewing Company.

Q. Did you have anything to do with the making of it?

A. I did not personally make this drawing or copy this tracing, but it was made under my direction.

(Deposition of William Clasmann.)

Q. Do you know whether or *not* is a true production?

Mr. LOFTUS.—Objected to as calling for a conclusion.

A. To the best of my knowledge, yes, it is true.

Mr. LYON.—Q. And what is this—as showing—

A. This shows the Jackson pump with the flange discharge pipe instead of screw discharge pipe. [263]

Q. I hand you a red lead pencil and ask you to mark the part that you have referred to in this drawing as “flange” with a red line and if you refer to any other parts, also mark them in red. Proceed.

A. Well, this here shows plainly the arrangement at the time, of supporting the inner casing and the bearings; if that is not material, very well and good. I don’t know whether it is or not.

Q. That is the view at the upper left-hand corner of the blue-print where you marked it in red?

A. Yes.

Mr. LYON.—This print is offered in evidence as “Plaintiff’s Exhibit, Clasmann Exhibit No. 3.”

Mr. LOFTUS.—Object to the offer. The print has not been properly proven or identified, and as not being rebuttal in the Los Angeles case.

(Document marked “Plaintiff’s Exhibit, Clasmann Exhibit No. 3.”)

Mr. LYON.—Q. To what installation does this print refer? Explain its connection with these Byron Jackson Pabst Brewing Company pumps.

Mr. LOFTUS.—Objected to as calling for a conclusion. Witness has already admitted he did not



(Deposition of William Clasmann.)

make the drawing or print or compare it with the supposed original. [264]

A. This is the layout or the proposition for the further installation—or the second and third installation.

Mr. LYON.—Q. I notice on this print (referring to Clasmann Exhibit No. 3) at the top (reading): “Advise sleeve coupling rather than flange coupling to provide for imperfect linement of well casing.” Do you know what that refers to?

A. That refers to this coupling (indicating), the sleeve coupling instead of flange coupling.

Q. Which you previously marked in red?

A. Which I had previously marked with red, yes. Now, this was our idea of construction, and there is Jackson’s suggestion.

Q. Now, please tell us what this next print in your pile is.

Mr. LOFTUS.—Objected to as calling for a conclusion of the witness, no foundation having been laid.

Mr. LYON.—When it was produced, and what it is?

Mr. LOFTUS.—And, further, that it is immaterial.

A. Now, this print here, dated May, 1904, shows the coupling constructed by us for holding these pipes together—the discharge pipes. You can see here that this coupling was bolted—was screwed on the pipe, as marked there. [265]

Mr. LYON.—Q. Marked “B” and “A” in red?

(Deposition of William Clasmann.)

A. "A," and that there was rivets put through there.

Q. Marked with "B"?

A. To get an absolutely rigid condition. That is the method that we used on the flanging.

Q. Of what pumps?

A. Of the second and third installation, pump number 3 and number 2.

Q. And when was this drawing made?

A. This drawing was made according to this, 1904.

Mr. LOFTUS.—I make the same objection; calling for a conclusion.

Mr. LYON.—Q. Did you have any knowledge of the making of this drawing?

A. It was made under my direction.

Q. At the time?

A. At the time, by one of the men under my supervision.

Q. With regard to the showing of this drawing, state how it compares or differs with the installation as you actually made it?

Mr. LOFTUS.—Objected to as calling for a conclusion of the witness.

A. To the best of my knowledge we installed pipes with couplings just exactly like this is. [266]

Mr. LYON.—Q. In what pump?

A. Pump No. 3, or well No. 3—generally—in order to give you a better idea, I think I better state that the first installation was made on deep well No. 4, and the second installation was made on deep well No. 3, and the third installation was made on deep well No. 2.

(Deposition of William Clasmann.)

Mr. LYON.—The print last referred to by the witness is offered in evidence as Plaintiff's Exhibit, Clasmann Exhibit No. 3.

Mr. LOFTUS.—This is objected to as not properly proven or identified.

(Document marked "Plaintiff's Exhibit, Clasmann Exhibit No. 3.")

Mr. LYON.—Q. Proceed, Mr. Clasmann, with these prints you produced and tell us when the prints were made, by whom, under whose direction, and for what and what they represent in connection with these Byron Jackson Pabst Brewing pumps?

A. Now, here is two blue-prints. One is dated July 14th, 1904, and another one without a date, both showing the final change of construction and showing the inserted spider as previously stated.

Q. The first of these, which I will ask to have marked [267] for identification, Plaintiff's Exhibit, Clasmann Exhibit No. 5—explain to us what that shows.

(Document marked "Plaintiff's Exhibit, Clasmann Exhibit No. 5.")

A. This shows the spider construction. You see there is a cast-iron ring which goes upon the flanges which shows on this other blue-print.

Q. Which is marked for identification "Plaintiff's Exhibit, Clasmann Exhibit No. 6." Proceed.

(Document marked "Plaintiff's Exhibit, Clasmann Exhibit No. 6.")

A. And three ribs running from this outer ring to the center which holds two bearings. Between the

(Deposition of William Clasmann.)

outer ring and the bearing in the center there is sufficient space left for the water to pass through. The bearing itself on this drawing is marked "Babbitt." We later used a bronze bushing which is in use to-day yet.

Q. By whom was this drawing exhibit 5 made?

A. This drawing, exhibit 5, was made by one of my draftsmen at my instruction.

Q. Who designed what is therein shown?

A. I, personally.

Q. On the right-hand view there are two concentric circles. What do these represent?

A. The inner circle represents the bearing material which is marked "Babbitt" here and later on changed to bronze. [268]

Q. What does the drawing at the right-hand side of exhibit 5, inside of the inner circle represent?

A. It represents the opening in the bearing in which the shaft—the pump shaft operated.

Q. Then when this was installed in those pumps, the shaft went through this central bearing you have identified? A. Yes.

Q. And what was between such shaft and the outer wall casing or the delivery discharge pipe of the wall? A. There was nothing in between.

Q. Now, which ones of the three Byron Jackson machine works pumps of deep wells 4, 3, and 2, was this installation put into?

A. This installation as it is shown here was put into pump three and two and later to two more, of which I do not remember the number now.

(Deposition of William Clasmann.)

Q. Was this particular installation put into well No. 4?

A. The spider as shown on this drawing—

Q. (Interrupting.) Exhibit 5.

A. (Continuing.) —was used on deep well No. 4, as well, but the flange construction was made different on deep well No. 4. On deep well No. 4, we used the original 9-inch casing furnished by Jackson with the first installation and had cast-iron flanges brazed on, giving the same construction with the only difference [269] that there was no riveting and no screwing.

Q. The drawing from which blue-print exhibit 6 was taken, by whom and under whose instructions was it made?

A. It was made under my instructions by one of my draftsmen.

Q. And approximately when?

A. Undoubtedly at the same time when this drawing was made.

Q. Exhibit 5. Now, do exhibit 5 and exhibit 6 correctly illustrate the constructions?

Mr. LOFTUS.—Objected to as grossly leading.

Mr. LYON.—Withdrawn.

Q. How do the showings of Plaintiff's Exhibit, Clasmann Exhibits 5 and 6, differ or correspond with the installations of wells 4, 3 and 2 as finally installed by the Pabst Brewing Company?

Mr. LOFTUS.—Objected to as calling for a conclusion of the witness and immaterial.

A. The drawing shows exactly how the installation is made on well 3, 2 and two other wells, and

(Deposition of William Clasmann.)

different for No. 4 well in so far that the flange is brazed on insteal of screwed and riveted.

Mr. LYON.—We offer in evidence the two prints produced by the witness and which have been marked for identification “Plaintiff’s Exhibit, Clasmann Exhibit 5 and 6, respectively.”

Mr. LOFTUS.—Objected to as not properly [270] proven or identified and furthermore as not being the best evidence, the witness having admitted that the tracings are in existence.

Mr. LYON.—Q. Now, referring back to the original installation of Byron Jackson pumps on deep well No. 4 for the Pabst Brewing Company as installed by Mr. Robb, you have referred to an inner casing in that installation—

A. (Interrupting.) Referred to what?

Q. Referred to an inner casing in that installation and to certain bearings in that installation. Please again state, and a little more in detail, just what difficulties you had with that inner casing and those bearings as thus installed by Mr. Robb.

A. The inner casing would shake itself loose; it would break apart where it was screwed together and finally the shafts would break. It would also shake the outer casing loose to some extent, that is, loose enough so it would slightly leak and would interfere with the pump running as soon as the lineament was lost, the shaft would begin to shatter and throw our belt off.

Mr. LYON.—You may crossexamine. [271]

Cross-examination by Mr. LOFTUS.

Q. When did you make up the blue-print you re-

(Deposition of William Clasmann.)

ferred to in your direct examination?

A. These blue-prints?

Q. Yes, these particular ones.

A. You mean when they were printed from the tracings?

Q. Yes. A. Last week.

Q. Where are the tracings?

A. The tracings are at the Pabst Brewing Company.

Q. Are they there now? A. They are there now.

Mr. LOFTUS.—I move to strike out all the testimony referring to blue-prints, for the reason that they are not the best evidence. The tracings are admittedly available.

Q. How long did you run the first pump, Byron Jackson pump, using oil for lubrication?

A. About somewhere around two months, to the best of my memory.

Q. During that time the pump worked satisfactory, so far as operation of the pump was concerned—so far as pumping water, but as I understand, the oil got into the water and you were using that water for washing beer kegs— A. Intended to use it—

Q. And this oil had a tendency to cling or adhere to the inside of the kegs and it was not a very desirable [272] addition to the beer; is that it?

A. That is about it, but we never used that water,—the water was never actually used, that had oil in it.

Q. Well, that is what happened, that is the reason you discontinued the use of the oil as a lubricant?

A. Yes.

Q. So long as you used the oil, it worked all right?

(Deposition of William Clasmann.)

A. No, it did not work all right.

Q. But it operated for two months?

A. It operated for two months and broke down.

Q. While you were using oil, it operated for two months?

A. While we were using oil it operated for two months, yes.

Q. Now, after you discontinued the use of oil you used water as a lubricant, and this water you used was city water?     A. Yes.

Q. Which, of course, is sandy and gritty—at least it was at that time?

A. It was not sandy and gritty, because we filtered it.

Q. Well, you tried to filter it, but still it contained considerable sand and grit?

A. It did not contain any sand or grit. The water was actually fit for water lubrication in the shape we used it for lubrication.

Q. Sandy and gritty water will cut out the bearings?

A. Sandy and gritty water will cut out the bearings; yes.

Q. Well, there is not any question about that and this city water, it is well known by anyone having anything to do [273] with it, it is sandy and gritty, not so much now as it was in the early years, 1902, 1903 and 1904, in the early years considered by those that tested it, that it was sandy and gritty.

A. I know quite a little about city water of those years, that is not a fact—city water was good for lu-



(Deposition of William Clasmann.)

bricating purposes in those days, especially after being filtered.

Q. I suppose if it was fit, that is why you filtered it?

A. To make absolutely sure that you would not get anything deleterious out of it or anything—that is the reason it was filtered.

Q. What kind of a filter did you use?

A. I believe we used a sponge filter.

Q. Are you certain about that?

A. Well, I don't know how certain—I am pretty positive—it is a long time to remember it absolutely.

Q. Do you remember where you bought that filter?

A. That filter was made right there.

Q. Do you know who made it?

A. It was made in the shop under my direction.

Q. Do you know who made it?     A. The foreman.

Q. Answer my question,—who made it?

A. The man who made it?

Q. Yes.     A. I cannot remember. [274]

Q. Do you know when he made it?

A. He made it at the time that that pump was used.

Q. 1905?

A. No, that was somewhere around 1904.

Q. He made it the latter part of 1904?

A. He made it the first part of 1904.

Q. Do you remember who made it?

A. I don't remember who made it.

Q. Where did he make it?

A. Made it right on the premises.

Q. As a matter of fact, you bought it already made, didn't you?     A. No, didn't buy it ready made.

(Deposition of William Clasmann.)

Q. How was this filter made?

A. The filter was made—a tubing—or casing, two heads on and filled with sponges.

Q. What kind of sponges?

A. Sponges such as you use for washing—same sponges you use for washing automobiles or something similar.

Q. Do you know a man by the name of Jessrang, Peter?     A. Jessrang—yes.

Q. Was he employed by the Pabst Brewing Company during the years 1902, 1903 and 1904?

A. Yes, foreman of one of the machine-shops.

Q. Did he have anything to do with this thing you spoke about?

A. Yes, he made practically—practically all this work was [275] done in his shop, or by his men.

Q. Now, when you were looking up this situation a week or so ago, did you find any correspondence in the files of the Pabst Brewing Company?

A. I did not look for correspondence.

Q. Did you find any memorandums—

A. Did not look for any memorandums at all—not after I knew I would be questioned on that (indicating blue-prints) and I got that stuff out to make sure.

Q. Do you know a man by the name of Rudolph Herman, secretary or officer of some kind in the Layne & Bowler Company?     A. Harmon, yes.

Q. Did he talk to you about this case?     A. Yes.

Q. How long ago?

A. About some time—about the same time I received the telegram from Townsend.

Q. Where did he talk to you, in Milwaukee here?

(Deposition of William Clasmann.)

A. Here in this office.

Q. How long have you known him?

A. That is to the best of my knowledge, the first time I met the man.

Q. How long did you talk to him in reference to it?

A. I guess he was in there—in here about half an hour or so.

Q. That was after this telegram that you referred to on your direct examination? [276]

A. No, not after, that was before I got that telegram.

Q. Did you ever recommend Byron Jackson pump to the Schlitz Company, here in Milwaukee?

A. I don't remember whether I recommended it to the Schlitz Company, but I have, wherever I had a chance, spoken a good word for Byron Jackson.

Q. It is a fact that Schlitz did purchase and use several of those Byron Jackson pumps?

A. Yes.

Q. And the Pabst Company after the first one, they purchased others right along, did they?

A. They purchased—let us see—if it is material I can count the number—

Q. Yes, you might give us the number.

A. I think we purchased five in all.

Q. The first pump was installed in 1902, wasn't it?

A. 1903 to the best of my knowledge—it was bought in 1902, I think,—I don't remember now.

Q. As a matter of fact, it was ordered in 1901 and installed in 1902, wasn't it?

A. I don't believe it was ordered in 1901—it was installed late in 1903.

(Deposition of William Clasmann.)

Q. You did not look up any records on that, did you?

A. I did not look up all the records, because I looked up those drawings—I could not give you any of those dates if it would not be for the dates on the drawings. [277]

Q. Who carried on the correspondence relating to these Byron Jackson pumps on behalf of the Pabst Brewing Company?

Mr. LYON.—Objected to as assuming a fact not testified to by the witness, if there was any correspondence between the Byron Jackson Company and the Pabst Brewing Company, direct.

A. Mr. Gustav Pabst and the Purchasing department.

Q. Who was the head of the purchasing department?

A. I believe Mr. Bates. He is dead now. He was head of the purchasing department at the time, and later on Arthur Muth—he had some of the early correspondence,—but I don't remember whether—

Q. Is Gustav Pabst here now?

A. He is residing in Milwaukee.

Q. Still associated with the brewery,

A. Still associated with the brewery. He is president of the concern, yes.

Q. As I understand it, the guarantee Byron Jackson gave was based on the condition that the pump be properly oiled? A. Yes.

Q. And that you used oil as a lubricant?

A. Well, I don't remember now exactly how that

(Deposition of William Clasmann.)

contract read, but we oiled it with oil and it broke down while it was oiled.

Mr. LOFTUS.—I move to strike out the answer as not responsive. [278]

Mr. LYON.—I resist the motion.

Mr. LOFTUS.—Q. Just answer the question and I will get it straight. Do you know whether or not the contract provided that—

A. I don't remember the wording of the contract on that.

Q. You don't know whether it provided that it must be properly oiled and oil used as a lubricant?

A. I don't remember that.

Q. Do you remember that Pabst wrote to Byron Jackson Company stating in substance that they would discontinue the use of oil and use water solely as a lubricant and Byron Jackson protested against the use of water and the discontinuance of the use of oil?

A. I remember that there was some correspondence on that subject, but I cannot remember the nature of it.

Q. Do you remember that Pabst said he would not hold him to the guarantee—that he would use water and release him of the guarantee?

A. I don't remember that exactly—it might be for all I know. The records will show.

Q. Pabst, as far as your company is concerned, he was the last word on what was done?

A. By "your company" you mean Pabst Brewing Company?

Q. Yes.      A. Yes.

(Deposition of William Clasmann.)

Q. He gave the final instructions? [279]

A. Yes.

Q. In fact, he had the entire charge of the purchase and installation of this particular pump?

A. Yes.

Q. You did not yourself oil this pump, did you?

A. No, it was not part of my work to oil the pump. I did not oil the pump—I may have put some oil on it one time or another—

Q. Just answer the question, the question is clear.

A. It was not oiled by me—it was not part of my work. It was oiled by the men in my charge.

Mr. LOFTUS.—Strike the answer as not responsive.

Q. Just answer “Yes,” or “No,” you did not have anything to do with the oiling of the pump?

A. The oiling of the pump was in my charge.

Q. Did you yourself oil the pump?

A. No, I did not oil that pump personally.

Q. Where was your office located with respect to where the pump was being used?

A. My office was located in what they call the old school building, 9th and Chestnut.

Q. That was a separate building from the pump?

A. Yes, separate building.

Q. How far from that?

A. Three quarters of a block—I think that is as close as you can set it. [280]

Q. Who instructed you to discontinue the use of oil as a lubricant?

A. I don't remember what procedure was taken, whether there was any special instructions, or

(Deposition of William Clasmann.)

whether it was without anybody's instructions that I proceeded.

Q. Why did you discontinue the use of oil?

A. Why?

Q. Yes.

A. Because the oil was objectionable.

Q. In what way?

A. Because oil did not give us all lubrication needed. In the first place the oil was objectionable for having it in the water, second place, the oil did not work down and give us sufficient lubrication—the upper bearings would be in fairly good shape while the lower bearings would eat out and then trouble would begin.

Q. Strike that out—the reason that Pabst himself instructed that you discontinue the use of oil was because it collected or adhered to the inside of the beer keg when washing these kegs, and for that reason it was objectionable.

Mr. LYON.—Objected to as assuming a fact not testified to by the witness.

A. The oil was objectionable because we felt we could not use oily water in our business.

Mr. LOFTUS.—Q. You used the water for washing kegs? A. For any other purpose. [281]

Q. That is what it was intended for primarily, washing kegs?

A. No, it was intended for all kinds of purposes throughout the brewery and principally for the purpose of ammonia condensing—for ammonia condensing purposes.

Q. You say you never did any oiling yourself?

(Deposition of William Clasmann.)

A. I never oiled the pumps personally, no,—perhaps once or twice or perhaps I showed a fellow or instructed some fellow there. The actual performance of oiling was not part of the work that I assumed.

Q. It was not due to worn bearings that the pump finally failed to operate with full effect?

A. What have you reference to, the first fall down of the pump?

Q. Yes.

A. Well, it was due to misconstruction of the inner casing—the whole thing was too weak.

Q. Now, wasn't it due to the worn bearings?

A. It was due to set screws shaking loose and it was due to poor threads and as far as bearings is concerned, there was perhaps some bearing trouble also, but the main trouble was with the rigging, that the inner casing supporting the bearing was not strong enough.

Mr. LOFTUS.—Strike it out. Just hold yourself down to the bearing. You can answer that yes or no.

Mr. LYON.—We submit the witness has fully answered the question, if counsel means due solely to the worn bearings. [282]

Mr. LOFTUS.—Just a moment,—he is under cross-examination now.

Mr. LYON.—Well, we submit that the witness is entitled to answer the question as he understands it.

A. If you ask me for any particular case when the breakdown was, I can answer that question, but there was so many breakdowns and one answer



(Deposition of William Clasmann.)

would do for one breakdown, while the answer would not do for another breakdown at all—well, the answer wouldn't do for the other.

Mr. LOFTUS.—Q. Well, as originally installed, with the inner and outer casing and using oil as lubricant, the pump did actually operate successful for a substantial period, didn't it?

A. For a period of about two months.

Q. And then later on the Busch Company paid for that pump. How much did they pay for that pump? Do you remember?

A. I don't remember; somewhere around \$2,500; I couldn't tell you that exactly.

Q. And after paying for it subsequently purchased two more—at least two more?

A. They purchased two more, but before they paid for it or about the time—

Q. Never mind,—they purchased some after they paid for it?

A. They purchased some after they paid for the first.

Q. How many?

A. Two more. Well, they purchased 5 pumps in all, to the best of my recollection. [283]

Q. Do you know what they paid for those other five?

A. For the pump alone they paid somewhere around eight or nine hundred dollars; I don't remember.

Q. Have you any connection with the Pabst Company now?

A. None whatsoever. O, I am not myself clear

(Deposition of William Clasmann.)

now—you mean any employment? I sell them some stuff once in a while, but you would not call that “connection”?

Q. You are not acting as engineer for them or in a representative capacity? A. No, no.

Q. Just what was supposed to be your work during the years 1902, 1903, and 1904, while with the Pabst Brewing Company?

A. I had charge of all machinery.

Q. What do you mean, “charge”? Going around and seeing that—

A. Well, all the men in all the mechanical departments, machinists, steamfitters, the engineer's office was under my direction and jurisdiction and I had charge, as you see—

Q. The purchase of these pumps, though, that was handled entirely by Mr. Gustav Pabst himself, that is correspondence communications, and he was the final word as to whether he would put it in or would not? A. Yes.

Q. And you took instructions from him?

A. I took instructions from him.

Q. He investigated the proposition himself and satisfied his own mind on the proposition before he ordered?

A. He satisfied his own mind and I was his adviser. [284]

Q. But you were under his instructions?

A. Yes, the same as boss and employee.

Q. As to the actual operation of the pump, Peter—What is his last name? A. Jessrang.

Q. (Continuing.) Jessrang really had more to

(Deposition of William Clasmann.)

do with it than anybody else connected with the Pabst Company?   A. No, he did not.

Q. He was the man that suggested the changes, whatever changes were made?

A. He is not the man that suggested changes. The changes were made in our office. There may be some suggestions—

Q. If he says he made changes, his testimony is not true?

A. He may have suggested changes—there may be something to that; I don't remember that.

Q. Do you know anybody by the name of Henry Danischefsky?   A. Yes.

Q. What is his position?

A. He is at the present time vice-president of the Pabst Brewing Company, and general manager.

Q. How long has he been general manager?

A. O, about six or seven years.

Q. What was he doing during the years 1902, 1903 and 1904?

A. He was not connected with the Pabst Brewing Company.

Q. He was not?   A. No.

Q. For how long a time did they use oil as a lubricant on [285] the first pump?

A. I could not say exactly for how long a time we used oil as a lubricant during the first period until the pump broke down.

Q. First two months?

A. Yes, we did and then we started water lubrication, but I don't know if we did right after that or not.

(Deposition of William Clasmann.)

Q. As a matter of fact, you started water before that?    A. No, we didn't.

Q. Are you sure about that?

A. To the best of my knowledge, yes. I would not be so awful sure about that because it is too long a time—hold on—no, sir,—wait a minute—we did not use water before it broke down.

Q. As a matter of fact, didn't they only use oil for about two days after the pump was put in, discontinuing using oil and using water after that?

A. No, sir.

Q. Are you sure about that?    A. Yes, sir.

Q. If you are mistaken, you are mistaken as to all the rest of your testimony?

A. I am not mistaken about that.

Q. You are certain you used oil up to the time it broke down?

A. I am certain we used oil up to the time it broke down. It was a question then—

Q. Just a moment—just answer the question. You are positive [286] on that?    A. Yes.

Q. You are positive they oiled—the pump was well oiled every day?

A. The pump was well oiled.

Q. You actually saw it oiled?

A. Yes, it was my business to see that it was properly done.

Q. You are absolutely certain that the pump was oil fed for a period of about two months?

A. Well, Jackson's man was there.

Q. Now, isn't it a fact that they discontinued oil on the pump and that Robb protested and wired

(Deposition of William Clasmann.)

Jackson and Jackson came back with a letter to Pabst protesting against the substitution of water for oil?

A. I don't remember exactly the correspondence any more, but the oil was used until the pump broke down.

Q. How do you happen to fix that in your mind that it was used up to that time?

A. Well, I know very well that we were going to run the test out.

Q. Didn't you have in your mind certain improvements that you wanted them to put on?

A. I did not have any improvements in my head at all until that breakdown, until there was no end of trouble.

Q. Well, it ran all right for two months, didn't it, and pumped the water? A. Yes. [287]

Q. It was operated every day during that time, during those two months?

A. Practically every day without any interference to amount to anything.

Q. Sundays, I suppose. And during that time operated just as installed?

A. Yes, sir, operated just as installed.

Q. Do you know Mr. Mead down at Madison?

A. At Madison, yes.

Q. How is he considered in the engineering fraternity, his standing or rating?

Mr. LYON.—Objected to as not proper cross-examination.

A. Mr. Mead's standing is a good one, as much as I know.

(Deposition of William Clasmann.)

Mr. LOFTUS.—Q. One of the leading sanitary engineers—one of the leading engineers of the country, isn't he?

A. I would not say one of the leading engineers,—is an engineer of some reputation.

Q. He was consulted by Pabst at the time of purchasing the Byron Jackson pump or before purchasing it?

A. Do you want a yes or no on that? Yes.

Mr. LOFTUS.—I think that is all. [288]

Redirect Examination.

(By Mr. LYON.)

Q. On cross-examination you stated that you recommended the Byron Jackson pump to the Schlitz Company. What are we to understand from that answer?

A. I did not state that I recommended to the Schlitz Company. I said possibly I did, and by recommending the Byron Jackson pump I had reference to the pump proper.

Q. Did you or did you not include in that this shaft enclosing casing and the bearings and the oil lubrication system?

Mr. LOFTUS.—Of course that is objected to as leading.

A. Whenever talking about the Jackson pump I made it a point to emphasize the fact—the trouble we had with that inner casing and I have never recommended the drive of the pump in the manner that Jackson has furnished it to anybody, but the pump proper I have recommended repeatedly.

Mr. LYON.—That is all.

Mr. LOFTUS.—That is all.

(Deposition closed.)

(Signed) W. CLASMANN. [289]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

EQUITY—No. 485.

INFRINGEMENT OF LETTERS PAT. 821,653.

LAYNE & BOWLER CORPORATION, a Corporation,

Plaintiff,

vs.

WESTERN WELL WORKS, INC., a Corporation et al.,

Defendants.

State of Wisconsin,  
Milwaukee County,—ss.

I, W. Schultz, a notary public within and for said county and state, duly commissioned and sworn according to law, do hereby certify that the foregoing deposition of William Clasmann was taken before me in the above-entitled suit, commencing at the hour of 10 o'clock A. M. on Saturday, February 21st, 1920, at the place named in the foregoing record; that said William Clasmann before giving his testimony was by me duly sworn to testify the truth, the whole truth and nothing but the truth according to law; that the parties to

said suit were represented by counsel as in the foregoing record set forth; that the foregoing is a true and correct record of all the proceedings had and taken during the taking of said deposition, together with a correct statement of the questions and answers propounded to and given by the witness; that the foregoing record is a true and correct statement of all proceedings and testimony had and given [290] upon the taking of said deposition; that the exhibits referred to therein were offered in evidence and have been identified and marked by me and are returned herewith; that I am not connected by blood or marriage with either of the parties to said suit, nor interested directly or indirectly in the subject-matter or the events thereof; that said deposition was read over and signed by said William Clasmann in my presence, counsel for the respective parties having waived being present at the signing.

[Seal]

(Signed) W. SCHULTZ,

Notary Public in and for Milwaukee County, Wisconsin.

My commission expires Aug. 2, 1920.

Dated, Milwaukee, Wis., Feby. 25/1920. [291]

No. 6484.

State of Wisconsin,

County of Milwaukee,

Office of the Clerk of the Circuit Court,—ss.

I, the undersigned, Clerk of the Circuit Court of the County of Milwaukee, in the State of Wisconsin (said court being a court of record and having common-law jurisdiction, a clerk and a seal), do



hereby certify that W. Schultz, Esquire, whose name appears subscribed to the annexed instrument, was at the date thereof a notary public within and for said state, residing in said county, duly appointed and qualified, and empowered by the laws of said state to administer oaths, take depositions and acknowledgments of deeds, and perform such other duties as by the law of nations, or according to commercial usage, may be performed by notaries public, and that to his acts and attestations as such, full faith and credits is and ought to be given in court and out. I further certify that I am well acquainted with the signature and handwriting of the aforesaid notary public, and I verily believe said signature, purporting to be his, is genuine, and that the seal hereto attached is a correct impression of his official seal.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said court at Milwaukee, in said county, this 25th day of February, 1920.

[Seal]

MAX E. BINNER,  
Clerk of Circuit Court. [292]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

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INFRINGEMENT OF LETTERS PATENT  
821,653.

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Defendants.

**Notice of Taking Depositions.**

To Defendants Above Named, and to Chas. E. Townsend, Chas. M. Fryer and Wm. A. Loftus Esqs., Attorneys for Defendants:

Please take notice that at ten o'clock in the forenoon, on Saturday, February 21st, 1920, at the office of W. Clasmann, 620-621 Wells Bldg., Milwaukee, Wisconsin, before a notary public or other competent officer, we shall proceed to take the depositions, *de bene esse*, of W. Clasmann, Peter Jessrang and Joe Maleseck, each of Milwaukee, Wisconsin, and each of whom resides in said city of Milwaukee, Wisconsin, more than one hundred miles from San Francisco, California, where the court in which the above-entitled cause will be tried is appointed by law to be held; the depositions so taken to be read in evidence at the final hearing and trial of said cause on behalf of the plaintiff.

The taking of these proofs will be under Section 863 of the Revised Statutes of the U. S., and the Rules and Practice for Courts of Equity of the U. S., and will be continued from day to day until completed. You are invited to be present and cross-examine the witnesses if you so desire.

Dated Chicago, Illinois, February 13th, 1920.

FREDERICK S. LYON,  
LEONARD S. LYON,  
WM. K. WHITE and  
TAYLOR E. BROWN,  
Solicitors for Plaintiff. [293]

Service of the foregoing notice is accepted, and receipt of copy thereof acknowledged, at Chicago, Illinois, this 13th day of February, 1920.

WM. A. LOFTUS,  
Attorney for Defendants.

[Endorsed]: Filed Mar. 1, 1920. W. B. Maling,  
Clerk. By J. A. Schaertzer, Deputy Clerk. [294]

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In the United States District Court, Northern District of California, Southern Division.

IN EQUITY—No. 485.

FOR INFRINGEMENT OF LETTERS

PATENT No. 821,653.

LAYNE & BOWLER CORPORATION,  
Plaintiff,

vs.

WESTERN WELL WORKS, INC., a Corporation,  
et al.,

Defendants.

**Depositions.**

Deposition *de bene esse* taken on behalf of defendants in the above-entitled suit, before Hattie B. Lehman, a notary public in and for the County of Cook and State of Illinois, at Room 1503 Marquette Building, Chicago, Illinois, commencing at the hour of 5 P. M., on February 11, 1920, pursuant to agreement of counsel.

Present: FREDERICK S. LYON, Esq., on Behalf  
of Plaintiff;

WILLIAM A. LOFTUS, Esq., on Behalf  
of Defendants.

Whereupon the following proceedings were had:  
[295]

By Mr. LOFTUS.—In view of the fact that the testimony about to be taken at this time on behalf of these defendants is to be the same testimony to be used by the defendants in the case of this same plaintiff against the American Well & Prospecting Company et al., being suit in equity No. E-42, pending in the United States District Court for the Southern District of California, and inasmuch as counsel for the said American Well & Prospecting Company et al. is present and has already given notice of his intention to examine this same witness upon the same matters touching the present case, and in order to prevent duplication of the examination of this witness in the two causes, and for the purpose of saving time and expense of all parties concerned, I will state, on behalf of the Western Well Works, Inc., and the other defendants in this case, that I shall waive the examination

of this witness in favor of Mr. Blakeslee, attorney for the defendants in the American Well & Prospecting Company et al. case, and will accept and adopt his examination and the testimony adduced thereby as the testimony and record in this case, reserving, of course, the right to interpolate interrogatories or objections as may appear necessary or proper. [296]

In the United States District Court, Southern District of California, Southern Division.

IN EQUITY—No. E-42.

Before Hon. LYNN HEIM, as Special Master.

LAYNE & BOWLER CORPORATION,  
Plaintiff,

vs.

AMERICAN WELL & PROSPECTING CO.  
et al.,

Defendants.

Met pursuant to adjournment as noted on the record of depositions as taken at the office of Burr W. Jones, Badger Block, Madison, Wisconsin, Tuesday, February 10, 1920, at the office of Clarence J. Loftus, Room 1434 Marquette Building, Chicago, Illinois, and as per stipulation between counsel, at the hour of 2 o'clock P. M., Wednesday, February 11, 1920, for the purpose of taking the deposition of J. W. Alvord under the stipulation and order of the Court.

Present: FREDERICK S. LYON, Esq., Solicitor  
and Counsel for Plaintiff;

RAYMOND IVES BLAKESLEE, Esq.,  
Solicitor and Counsel for Defendants.

At this hour an adjournment was taken by consent to the office of Hattie B. Lehman, notary public, 1503 Marquette Building, Chicago, Illinois, at the hour of 4:30 o'clock P. M., at which hour counsel for plaintiff and defendants appeared as last recited.

Thereupon proceedings were had as follows:  
[297]

By Mr. BLAKESLEE.—Notice is hereby given that defendants will, on further specific notice, move the Honorable Special Master, to whom this cause has been referred to try and determine same, for an order permitting defendants to amend the amended answer of defendants herein by the insertion of the following matter:

Paragraph XXI. As a separate and alternative defense, defendants allege and aver that the alleged invention of the pretended Layne letters patent sued under in the bill of complaint herein, and particularly the alleged invention of claims 9, 13 and 20 thereof, and alleged to be set forth, claimed or patented in and by said pretended letters patent 821,653 and claims 9, 13 and 20 thereof, are wholly void and of no legal effect whatsoever, in that said Mahlon E. Layne surreptitiously or unjustly obtained said pretended letters patent, and particularly as to the alleged improvements mentioned and claimed in said claims 9, 13 and

20 thereof, for that which was, in fact, invented by another, to wit, John W. Alvord, of Chicago, Illinois, who was using reasonable diligence in adapting and perfecting the same, and who filed applications for letters patent of the United States and received letters patent of the United States for same, or parts or all of same, as follows, to wit:

Application for U. S. letters patent No. 735,-690, filed November 17, 1902, letters patent issued August 11, 1903; [298]

Application for U. S. letters patent No. 735,-691, filed December 24, 1902, letters patent issued August 11, 1903;

Application for U. S. letters patent No. 735,-692, filed March 30, 1903, letters patent issued August 11, 1903,

and who never abandoned same.

Wherefore defendants, and each of them, pray for dismissal of the bill of complaint, for their costs and disbursements, and for such other and further relief as may be meet and proper.

By Mr. LYON.—Plaintiff declines to accept any such notice of intention to move for leave to amend the defendants' answer in this case. If the purpose of the Alvord deposition be to attempt to prove the stated allegations of any such proposed amendment to the answer, defendants object on the ground that the taking of such deposition at this time is not within the intent or purport of the stipulation or order of the Special Master; that such deposition or such testimony will not be germane to the issues

of the case, and plaintiff, upon return to Los Angeles, will move the Special Master to award to plaintiff, and against defendants, judgment for the expenses to which plaintiff is put by reason of attendance upon the taking of the deposition of J. W. Alvord at Chicago, Illinois, the same so being entirely immaterial, incompetent and inadmissible under the pleadings and not within the matter which was the object of the continuance and permission to take depositions. [299]

By Mr. BLAKESLEE.—We stand upon the stipulation and order of the Special Master under which we are about to take the deposition of the said John W. Alvord and notice of motion last given on the record, and the testimony of the witness will speak for itself in these respects and in any others in which we adduce evidence from such witness.

By Mr. LYON.—The plaintiff's objection will not be repeated to this deposition on this record and will be understood as taken and reserved to any deposition taken by defendants, of said John W. Alvord, if the subject matter of such deposition, or the interrogatories propounded to him, be directed toward the stated allegations of amendment to the answer to-day specified by defendants' counsel. This objection will be understood as reserved, and upon the reconvening before the Special Master motion to strike the same from the case will be made and the Master requested to rule thereon before proceeding further in the case.

I anticipate that you desire, Mr. Blakeslee, that we await the appearance of Mr. Alvord, do you?



By Mr. BLAKESLEE.—We were to convene at 4:30 by stipulation. It is now 10 minutes of 5:00 and we expect the witness, Alvord, momentarily.  
[300]

**Deposition of J. W. Alvord, for Defendants.**

J. W. ALVORD, a witness produced on behalf of the defendants, being first duly sworn testified as follows:

(Examination by Mr. BLAKESLEE.)

Q. 1. Please state your name, age, residence and occupation.

A. John W. Alvord; residence, Chicago; occupation, civil engineer; age, fifty-nine.

Q. 2. How long have you been engaged in that calling or profession, Mr. Alvord?

A. Forty years.

Q. 3. Most of the time at Chicago?

A. Yes, sir.

Q. 4. Giving special attention to any particular line?

By Mr. R. L. OTWELL, Appearing for the Witness.—I object to that question. He is not an expert witness and he is not qualifying as an expert witness. If he is a witness at all he is simply a witness as to facts.

By Mr. BLAKESLEE.—We object to the appearance for the witness and ask that the examination be not interrupted, unless the witness, through his attorney, raise some question of privilege or constitutional right, but want to object to any action on the record by attorney for the witness in any other respects. [301]

(Deposition of J. W. Alvord.)

Q. 5. Are you the same J. W. Alvord to whom letters patent of the United States Nos. 735,690, 735,691 and 735,692 were issued?

A. I have taken out patents; I have no recollection now of the numbers.

Q. 6. Kindly inspect copies of the patents which I offer you now and state if you can answer the preceding question more fully.

A. The patents shown me appear to be patents for which I have taken out numbers corresponding with your question.

Q. 7. Please state when these matters of these patents first came into existence through your efforts.

By Mr. LYON.—That is objected to, first, as calling for a conclusion of the witness, and assuming facts not testified to by the witness, to wit, that the matters each came into existence, and further, in case No. E-42, upon the ground that is is irrelevant and immaterial and incompetent, not pleaded.

A. I presume they came into existence on the dates shown in the patents themselves.

Q. 8. When did you first have any experience, prior to that, with these matters, as to mental conception or operation?

By Mr. LYON.—Same objection as last noted, and this objection will be understood as repeated and reserved to all questions asked this witness, without the necessity of hereinafter specifically repeating the objection to each question. [302]

A. In answer to the question the witness desires to state that he has been subpoenaed in this mat-

(Deposition of J. W. Alvord.)

ter within one hour of his appearance before the notary, and in matters in which he has had no recent knowledge for many years past, no recollection of any of *the* nor has he been able to refresh his memory within the short notice which he has received.

Q. 9. Are you able or unable to give an answer to the last question?

A. I will be unable to give an answer to it without carefully refreshing my memory by a search on matters which are now long past.

Q. 10. You have no data with you, or memoranda or entries of any sort, which would tend to refresh your recollection in these respects. A. No, sir.

Q. 11. You testified as a witness for the defendants in the equity suit of Mahlon E. Layne et al., Plaintiffs, vs. Fred I. Getty, Defendant, a cause which was at that time pending in the District Court of the United States for the Western District of Louisiana, did you not?

By Mr. LYON.—Objected to as irrelevant and immaterial to the issues of the present case and wholly incompetent. Whatever testimony this witness may have given in any other case is not admissible in this case, as the parties to the litigation are not the same and the testimony that he may have given, or may not have given, in any other case can have no bearing upon any testimony given here.

[303]

By Mr. BLAKESLEE.—We will ask counsel to refrain from bringing argument upon the record, in violation of our permanent equity rule, and we call attention of counsel to the fact that the ques-

(Deposition of J. W. Alvord.)

tion calls for a yes or no answer; and we will ask the witness, on rereading of the question, to answer it in that way.

A. Witness declines to answer it either by yes or no, because he is unable to say either yes or no to the question; he has no recollection of the specific title, time, place or parties to the suit, as stated in the question.

Q. 12. Do you remember testifying on behalf of defendants in a suit in equity involving the letters patent of one Mahlon E. Layne for pumps?

By Mr. LYON.—Same objection as last noted on the record.

A. I remember testifying in some case pertinent to the patents in question. That is about all the recollection I have at this time.

Q. 13. There was only one such occasion, was there not, within your recollection?

By Mr. LYON.—Same objection.

A. I don't recall.

Q. 14. Do you recall more than one such occasion when you so testified in a case of that character?

By Mr. LYON.—Same objection.

A. I don't recall testifying but the one time.

Q. 15. In giving such testimony, and referring to the three letters patent copies of which you have identified as [304] being copies of letters patent of the United States issued to you, did you not state, in answer to a question: "I first devised the means for lining pump shafts in the early part of 1902. My attention was first attracted to the possibility of placing centrifugal pumps in deeper artesian

(Deposition of J. W. Alvord.)

wells by a paper presented to the American Water Works Association. This penciled sketch is dated April 23, 1902, and signed by me in my own handwriting, both date and signature; for the purpose of identification a photograph of this pencil sketch is filed herewith, marked Defendant's Exhibit No. 22. On or about the 23d of April, 1902, my letter file shows that I wrote to George P. Whittlesey, a patent attorney of Washington, D. C., asking him to make a search in the Patent Office at Washington which would disclose the prior art in which I was seeking an invention." In answering this question, I hand you a copy of the testimony to which I have alluded in my question.

By Mr. LYON.—Objected to as leading and suggestive and as incompetent, not the proper method of proof, and as incompetent, irrelevant and inadmissible in this case, it being immaterial in this case what the witness did or did not testify to in some other case unless it be shown that the parties to such litigation were the same as the parties here or are in some manner bound by the decree in such suit, if any, by participation or succession in interest; further, on the ground that the witness is entitled to have placed before him either the original record of such testimony [305] or a duly certified copy thereof; further, that the question can only be asked for the purpose of impeaching the testimony of the witness given in this case, and he having given no contrary testimony the question obviously cannot be impeachment, but is merely an attempt to read into the record in this case alleged testimony alleged to

(Deposition of J. W. Alvord.)

have been given by this witness in some other case between different parties than the parties to this case, and not a competent proceeding in any manner; and plaintiff protests against the procedure and gives notice that he will ask the Special Master to impose the entire cost of the taking of this deposition, and the expenses of plaintiff's counsel in attending thereon, for this violation of the rules.

By Mr. LOFTUS.—I desire to call the Court's attention to the fact that the record shows that this witness is hostile, therefore a leading question is proper. He further states that he does not recall the subject matter of his testimony, therefore the form of the question is proper, in order that his memory may be refreshed.

By Mr. BLAKESLEE.—We repeat the same observations just made by counsel for defendants, Western Well Works and others, and ask that the witness answer the question. [306]

A. The witness denies the allegation of counsel that he is hostile to any fair representation of facts in this case, but protests again that he has been summoned here without reasonable notice, without opportunity to refresh himself as to the facts in the case, and in answering the specific question is unable to recollect that he did or did not make such answer as has been read to him by counsel, or that such testimony as presented to him by counsel is, in fact, his testimony in the prior case.

Q. 16. You appear here in response to subpoena of the United States District Court, do you not?

A. Yes, sir.

(Deposition of J. W. Alvord.)

Q. 17. And prior to the hour of noon to-day you were requested by both counsel for the two defendants here to appear at your convenience to-day and testify voluntarily in these matters, were you not?

A. I was so requested, and I declined because I was engaged on other important matters in which my time was under contract to the city of Madison, and that I could not divert my attention on such short notice to the matters in question.

Q. 18. On the 5th of January, this year, you had a conference with a Mr. Fryer, of San Francisco, an attorney, regarding this same matter and the question of your testifying about these matters, did you not?

By Mr. LYON.—Object to as leading, suggestive, incompetent, it not being shown that Mr. Fryer was or is in any manner connected with or represented the plaintiff in this suit, the fact being, [307] on the contrary, that he represents the defendants in equity case No. 485, and it not being shown that and such conversation was in the presence of the plaintiff or any of its officers, or anyone representing it or in any manner authorized to represent it or connected with it; and as irrelevant and immaterial, not the proper method of proof, and obviously solely for the purpose of incumbering the record, and could be for no purpose competent in this case except for impeachment, and the witness having given no testimony as to any such conversation, or as to any facts germane to this case, cannot be impeached in this case.

A. I am not able to identify the name or the at-

(Deposition of J. W. Alvord.)

torney in question, but an attorney did call at my office and had some conversation with me about testifying in these matters.

Q. 19. And at that time, please state whether or not you discussed your knowledge about these matters which I have inquired into in the preceding questions, namely, discussed them with the said attorney, Fryer.

By Mr. LYON.—Same objections are noted as noted to the preceding question, and plaintiff protests against the continuance of this line of interrogation of the witness. It is clearly an abuse of the process of the court and clearly an abuse of the right to take depositions in this case. It cannot be and it is not certain that the plaintiff in this case had anything to do with any such interview, and it cannot be competent evidence in this case, in any of the issues in this case. [308]

By Mr. BLAKESLEE.—We call the Master's attention to the violation by plaintiff of the equity rule which forbids controversy and argument on the record, and will ask the attorney to refrain from such discussion when the question is re-read, which we likewise request.

Q. 19 repeated.

A. It is my recollection that I discussed them to the extent of stating to the attorney that it was my belief that all of the parties in this suit had infringed my patents and were continuing to infringe them.

Q. 20. Please state anything further that you said in talking with Mr. Fryer at that time.



(Deposition of J. W. Alvord.)

By Mr. LYON.—Same objections as last noted.

A. I don't recall anything further which I stated at that time.

Q. 21. Please state whether or not you discussed with Mr. Fryer at that time your knowledge of inclosed line shafts for pumps, and reviewed your former testimony in these respects with Mr. Fryer.

By Mr. LYON.—Same objection.

A. My recollection is that Mr. Fryer showed me documents which purported to be my former testimony in the case, and that he explained to me the question at issue in a general way.

Q. 22. Did you or did you not recognize the purported copy of your prior testimony as, in fact, being such testimony on that occasion?

By Mr. LYON.—Same objection.

A. No, sir; I did not. [309]

Q. 23. Did you recognize anything appearing in such purported copy of your previous testimony as being in conflict with such previous testimony?

By Mr. LYON.—Same objection.

A. It had apparently the earmarks of being testimony which I may have delivered, but I had no opportunity of verifying it.

Q. 24. Will you kindly look again at the copy of testimony which I have offered you, and at the portion thereof which I incorporated in a previous question in quotation, and state whether that does not agree with what you discussed with Mr. Fryer as being your prior testimony on the occasion mentioned.

By Mr. LYON.—Same objection as last noted on

(Deposition of J. W. Alvord.)

the record, and upon all of the grounds stated in the objections to the question asked this witness in which said alleged quotation from said alleged copy of testimony was given.

A. The testimony which you hand me has the appearance of being testimony which I may have delivered in a former case, but I have no means of verifying that fact.

Q. 25. Well, if it so appears, are you not prepared now to state, one way or another, whether you did not devise your patented means for lining shafts in the early part of 1902, namely, the means which you have previously identified as being reflected in your United States letters patent 735,690? By Mr. LYON.—Same objections as last noted on the record. [310]

A. (Witness declines to discuss alleged testimony which he has had no opportunity of verifying, particularly in view of the way in which he has been suddenly summoned and brought into this case, and in view of the fact that the defendants in this case are, in his opinion, infringers upon his patent.)

Q. 26. Well, if, in your opinion, the defendants in these cases are infringers upon your patent and you wish us to understand that as your testimony, will you please explain why you consider them infringers, and in that connection tell us about the structure of the invention of your patent which you consider so infringed?

By Mr. OTWELL.—Objected to on the ground that he is not on trial here himself as his cases, and it is his privilege, owing to the fact that he

(Deposition of J. W. Alvord.)

has certain rights that he proposes to litigate, and that are not under litigation here, and I would instruct him, not to answer that question.

By Mr. LYON.—We object to the question on behalf of the plaintiff on each of the grounds stated in the last objection on record.

A. On advice of counsel, I decline to answer the question as above stated.

Q. 27. In spite of the fact that you could not be on trial, as your counsel rather mysteriously states on the record, with respect to any question of infringement which might be tried pertinent to your patent or patents, we will again request you to state the elements of your invention, as you remember them, namely, the invention disclosed in these three letters patent which you admit you obtained.  
[311]

By Mr. LYON.—Same objection.

By Mr. OTWELL.—I object, also, on the ground that the letters patent are the best answer to that question as to what his claims are.

By Mr. LYON.—We urge the further objection on behalf of plaintiff that it is incompetent, not the best evidence, the patents speaking for themselves.

A. Witness would state that he is unable at this time to clearly go into the matter, owing to the fact that within an hour of this he had received no notice of the necessity of reviewing the patents themselves, the patents not having been read by him for many years past; that he has been absorbed in other matters of vital importance all of to-day,

(Deposition of J. W. Alvord.)

and could not intelligently answer such a question even if his counsel advised him to do so.

Q. 28. Referring to your patent No. 735,690, for means for lining pump shafts and well casings, will you please tell me what the part adjacent to the number 7 represents in each of the figures of the five views of the drawings?

By Mr. LYONS.—Objected to as incompetent, not the best evidence, the patents speaking for themselves, and upon each of the grounds of objections urged to the preceding questions, and on the further ground that the witness cannot be examined in this proceeding as an expert witness in case E-42, as only fact depositions were to be taken, and under the equity rules in case No. 485, no right to take [312] depositions of experts *de bene esse* exists, there is no order of the Court permitting the taking of such a deposition *de bene esse*.

By Mr. BLAKESLEE.—We cannot recognize any thread of expert testimony running through a question and answer which merely contemplates the inventor or patentee of a patent pointing out the identity of a part shown in his patent drawing, and we are attempting purely to obtain from this witness statements of fact concerning his invention, or alleged invention, and its representation in the drawings.

A. The figure 7 represents a casing, in the drawing inclosing the shaft.

Q. 29. When did there first come before your mind the matter of such a casing inclosing a shaft?

(Deposition of J. W. Alvord.)

By Mr. LYON.—Objected to as leading and suggestive.

By Mr. OTWELL.—I object to the question on the further ground that it might be prejudicial to him in any litigation which he may hereafter have on this same subject matter.

A. The witness is unable to say, having had no opportunity to refresh himself on the matter, which took place many years ago.

Q. 30. Please state whether or not you did not state to Mr. Fryer, the attorney, upon the occasion of the conference I have previously referred to, namely, some few weeks ago, that you were willing to testify again about these matters provided it did not take too much time. [313]

By Mr. LYON.—Same objection as noted to each of the questions heretofore asked this witness in regard to the alleged conversation with Mr. Fryer.

A. I have no recollection of having done so—in fact, my impression is that I stated to him that I was unwilling to take the time now to go into these matters, as I was particularly busy at this time on engineering reports of great importance.

Q. 31. Please state whether or not you did state to Mr. Fryer at that time that you were willing to give such testimony again if it did not inconvenience you.

Mr. LYON.—Same objection as last noted.

A. I have no such recollection.

Q. 32. You will not say that you did not so state?

By Mr. LYON.—Same objection.

A. I will not say that I did not or that I did; I

(Deposition of J. W. Alvord.)

have no recollection about it.

Q. 33. You have no independent recollection at this time as to the year in which you first had presented before you, or when there first came to your attention or comprehension, this inclosing casing 7 of the patent I last referred to in my question?

By Mr. LYON.—Same objection as noted on the record.

A. No, sir; I have no recollection at this time.

Q. 34. Have you any recollection, or have you not any recollection at this time, of writing to Mr. George P. Whittlesey, patent attorney of Washington, D. C., asking him to make a search in the Patent Office concerning a certain prior art? [314]

By Mr. LYON.—Same objections as last noted on the record.

A. I have no recollection at this time as to that matter.

Q. 35. No recollection as to writing that letter to Mr. Whittlesey?

By Mr. LYON.—Same objection.

A. No, sir.

Q. 36. Have you the letter-file still which records the writing or shows the writing of such letter to Mr. Whittlesey?

By Mr. LYON.—Same objection.

A. I am unable to say.

Q. 37. Do you or do you not know whether or not it is now at your office a few blocks from here?

By Mr. LYON.—Same objection.

A. I do not know.

(Deposition of J. W. Alvord.)

Q. 38. When did you last consult or refer to such file?

By Mr. LYON.—Same objection.

A. I don't recall referring to that matter for many years.

Q. 39. Did you or did you not refer to that file when Mr. Fryer was talking with you a few weeks ago?

By Mr. LYON.—Same objection as noted in regard to all questions asked concerning Mr. Fryer.

A. No, sir; I did not refer to that file; I am sure of that.

Q. 40. Did you or did you not, on the occasion of that Fryer conference, look through your testimony given in such previous suit as you say you once testified in about these matters? [315]

By Mr. LYON.—Same objections as noted on the record, and as irrelevant and immaterial.

A. My recollection is that the attorney in question—I don't identify him as Mr. Fryer—showed me what purported to be my testimony in a former suit. I did not read it, I merely glanced at it.

Q. 41. Mr. Alford, we do not wish you, or wish your counsel, to obtain the impression that we are seeking to embarrass you in any manner regarding this present deposition, or to obtain the impression that we are seeking to inquire into any matter which was not developed in the course of the previous deposition you have admitted giving; nor do we seek to embarrass you in the matter of time or brevity of notice with respect to your giving this present deposition. Such seeming pressure on

(Deposition of J. W. Alvord.)

our part is solely due to time limits which have been imposed upon us in this matter by the judicial officer who has ordered the taking of depositions in this case in the east, by the necessities of our shortly returning to California. I wish to inquire, therefore, whether, if arrangements could be made to that end, you could more conveniently, comfortably and fully and satisfactorily answer such questions as I have previously put to you, and others concerning the matters of your previous deposition, at an early date hereafter?

By Mr. LYON.—Object to as not evidence in this case, and as irrelevant and immaterial to all the issues and needlessly incumbering the record, not proper in examination of a witness by deposition in any manner whatsoever; if counsel wishes to make an arrangement with this witness [316] to testify some other time, he is at perfect liberty to do so, but he should not do so under the guise of taking a deposition, and he is not entitled to an answer under oath in a case in which this plaintiff is a party at all.

By Mr. BLAKESLEE.—We merely put this question on the record in order that the objections and reluctances of the witness may be recognized as of record, and particularly in view of the appearance here of counsel for the witness; and the answer we believe is germane to the course which we will further pursue in this matter.

Q. 41 repeated.

A. Witness would state in answer to the lengthy statement of counsel that he has no motives other



(Deposition of J. W. Alvord.)

than those of embarrassment at the sudden and unexpected way in which he has been called to the witness-stand; that he has had no recent opportunity to refresh his mind upon any of the questions asked him; that he recognizes the necessity of being unusually careful and accurate in a matter in which he is vitally interested, and protests again at the manner in which he has been subpoenaed on one hour's notice, without opportunity to refresh himself upon the matters at issue, and that to intelligently answer questions of counsel and throw any light upon the matter would necessitate several weeks of preparation, search in the files and correspondence of his office, and study of matters which have long since passed out of his memory. Such preparation he has no opportunity to make just at this time, as he is engaged in a [317] considerable number of most important engineering, professional engagements for large cities that are awaiting results of his investigations.

Q. 42. Are the records in which you might reasonably expect to find these matters or papers or information readily available to you if you looked for them—these records and files?

By Mr. OTWELL.—Objected to; the witness has answered this question once before by stating that he was not familiar—did not remember what records he had now or had preserved in reference to these matters.

By Mr. LYON.—Objected to as incompetent, irrelevant and immaterial for any purpose in this case, and as assuming facts not appearing in the

(Deposition of J. W. Alvord.)

testimony of the witness, that he now has any records that pertain to any issue of this case.

A. I would not be able to say even that they were or were not without time to investigate.

Q. 43. In what places do you keep such records on file?

By Mr. LYON.—Same objection as last noted on the record.

A. Some of them are at my office, some of them at my house, some of them may exist and some of them may not exist.

Q. 44. Are both of those places—that is, the places that exist—in Chicago?

By Mr. LYON.—Same objection.

A. Yes. [318]

Q. 45. I will ask you again, or a little further, whether now you can tell us anything about these preliminary steps you took about this means for lining pump shafts in well casings prior to the time you applied for patent on same.

By Mr. LYON.—Same objection as noted on the record, and as leading and suggestive.

A. I would not be willing to go into any statement of that kind without adequate preparation and careful research which would make my statement accurate and truthful.

Q. 46. Will it be possible for anyone to assist you in unearthing these records and files to find what you need to refresh your recollection in these respects?

By Mr. LYON.—Same objection as noted on the record, and plaintiff protests against this manner of

(Deposition of J. W. Alvord.)

examination; it can only lead to some other deposition of the witness and counsel should take that matter up with the witness and not take it up under the guise of a deposition and require the attendance of plaintiff's counsel at expense while the defendant's counsel seeks to ascertain whether some kind of evidence exists.

By Mr. BLAKESLEE.—Counsel should remember the present witness appears here, not voluntarily but under subpoena, and we know of no other method of eliciting this information other than by interrogatory.

By Mr. LYON.—The witness has not stated, nor has he indicated, an unwillingness to answer any question [319] that defendants may desire of him, or to give any information as to any evidence which he may have. So far as I understand his statements on the record, they have simply been a protest against being hauled up here by a subpoena on an hour's notice, and certainly it is an abuse of the process of the Court and a disregard of the rights of the plaintiff to prosecute the inquiry as to the willingness of the witness to produce testimony when he has already indicated that, given the necessary time, etc., he would not be unwilling to do what he could for the defendants.

By Mr. BLAKESLEE.—We fail to recognize any ground, within the rules of evidence asserted by counsel in his long statement, which amounts to proper objection, and we again protest against the violation by counsel of the equity rule which forbids argument upon the record. We shall move to tax

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the expense and cost of this deposition to plaintiff if this course is continued.

Q. 47. Reread.

A. Not materially.

By Mr. BLAKESLEE.—We will ask the witness to make such search for data, records and files as he may need to refresh his recollection regarding these three patents inquired about and the matters therein shown and described, and to produce same at this place at the hour of 10 o'clock on Friday, the 13th of February, 1920, until which hour the [320] witness is excused as far as defendants in cause E-42 are concerned.

By Mr. LYON.—We call counsel's attention to the fact that the time for taking depositions under the stipulation and order of the Special Master, so far as such time extent on behalf of the defendants is involved, expires to-day; that plaintiff has been exceedingly lenient and courteous in attending at the times for taking depositions, and that without a further order of the Special Master the plaintiff will decline to attend the taking of any such depositions; that the stipulation requires the plaintiff to close its eastern depositions to be taken on this trip on or before next Monday evening, and that such stipulation provides that plaintiff shall have all of the time intervening between the present date and next Monday in which to do so. The fact that the defendants in case E-42 have not prepared to take the deposition of this witness, though having had since the last adjournment before the Master in which so to do, is no excuse for their now violating

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the stipulation and order of the Special Master.

By Mr. BLAKESLEE.—The exigencies of the case will make it apparent that the course we are forced to pursue is necessary, and we shall ask, upon our return to Los Angeles, that the Special Master make an order that the depositions be considered [321] taken within the time permitted by the stipulation and order *nunc pro tunc*, and shall make a showing at that time, upon the first appearance before the Special Master, of the exigencies and circumstances of the present situation. At the same time we shall move the Master for an order to amend the answer of defendants as noticed upon the record at the commencement of these proceedings, and at this time we offer in evidence the three printed copies of United States letters patent Nos. 735,690, 735,691, and 735,692, identified by the witness, as Defendants' Exhibits "A-1," "A-2" and "A-3," respectively, and ask that the same be so marked.

By Mr. LYON.—Objected to as incompetent, irrelevant and immaterial, and this objection is reserved to each part, recital and portion of each of said purported copies of patents.

By Mr. BLAKESLEE.—We, of course, make this offer under our motion to amend the answer in the respects just mentioned. [322]

Thereupon the following interrogatories were propounded to the witness in the case of Layne & Bowler Corporation vs. Western Well Works, Inc., in Equity, No. 485:

(By Mr. LOFTUS.)

Q. 48. Mr. Alvord, as I understand from your

(Deposition of J. W. Alvord.)

testimony, you do not know at the present time where the records are located which would enable you to refresh your memory regarding your early work on the subject matter of your various patents?

By Mr. LYON.—Objected to as irrelevant and immaterial, and leading and suggestive, and as assuming facts not testified to by the witness, that there are any records. A. No, sir.

Q. 49. How long would it take you to find out where those records are?

By Mr. LYON.—Same objections.

A. I could not say.

Q. 50. Will you please look into this matter, make an effort to locate these records, and report the results of your search at 10 o'clock on Friday, February 13th, at the same place—till which time you are excused?

A. I decline to do so on the ground that I am now under contract in important vital matters for large municipal corporations; every minute of my time is engaged and will be for some time to come.

Q. 51. Do I understand the witness to say that he refuses, under this subpoena, to look for the existence of any such records? [323]

A. I do at this particular time.

Q. 52. And to report the results of his search after a lapse of thirty-six hours?

A. Witness wishes to state that having been shown no legal courtesies whatever in this case, no consideration at all for his other and professional engagements or contracts, he is under the necessity of declining to take time, at this time, which be-

(Deposition of J. W. Alvord.)

longs and is contracted for by other corporations, which contracts he is bound in honor to observe, and which will prevent him from doing as counsel requests.

By Mr. BLAKESLEE (to Notary).—Note an adjournment in both cases in all matters until the hour of 10 o'clock A. M., at this place, February 13, 1920.

By Mr. LYON.—Please note in behalf of the plaintiff a protest and an objection, and especially in E-42, on the ground that it is a violation of the stipulation and order of the Special Master and a direct violation of the personal agreement of counsel. Counsel knows that it has been agreed that plaintiff's counsel may leave Chicago on the morning train to-morrow for Washington; that his transportation is bought and arranged, and that he has a hearing in the United States Patent Office on February 13, 1920, which he must attend, and that there is neither an answer which will permit the introduction of the apparently sought testimony of this witness in this case, nor an [324] issue raised by the pleadings under which such testimony is competent, relevant, material or admissible, and until a hearing has been had upon the motion which counsel signifies he will hereafter make the testimony of this witness in case E-42 is not germane to the issue and is inadmissible.

By the WITNESS.—Witness wishes to state that the hour and date of the adjournment arbitrarily fixed by counsel are such as conflict with obligations which he has incurred to be out of the City on im-

(Deposition of J. W. Alvord.)

portant matters on which he is under contract professionally, and that unless he attends will be a serious loss to his clients in a very important matter.

By Mr. BLAKESLEE.—In response to the last observations of counsel for plaintiff, we resent his statement that there is any violation in this planned procedure of any stipulation or agreement in this matter, for these reasons: The stipulation and order under which we are proceeding, namely, the stipulation as approved by the Special Master, permitted us to proceed for defendants until the end of this present day. We assert our right to do so, and we further state that had this deposition of the present witness Alvord, been completed to-day we would have gladly accommodated counsel to take any rebuttal deposition [325] he wishes to take, such as the deposition of the witness Classman, at any time this evening, but we decline to depart from the stipulation and order of the Court and to permit any rebuttal procedure by the plaintiff until we have completed these eastern depositions of the defendants. We submit that if counsel is forced to leave the city to-morrow, as we understood previously to be the fact, that it should be easy for him to obtain the assistance of some associate counsel to interrogate the witness Classman.

Furthermore, as to the pleadings, we wish to assert that if counsel had objection to the taking of the deposition of the witness Alvord that objection should have been urged at the time the stipulation and order were made. The testimony of the present witness relates to matters of the prior art as well



(Deposition of J. W. Alvord.)

as to matters to be pleaded in any amendment to the answer, and as to such amendment we will abide the ruling of the Master.

By Mr. LOFTUS.—The witness is instructed that he is not excused under this subpoena, but is required to report here to complete his testimony on Friday, February 13th, at 10 o'clock.

By the WITNESS.—Witness calls attention to the fact that it is long past the usual time for closing.

Thereupon the further taking of testimony herein was adjourned to Friday, February 13, at 10 A. M.  
[326]

Friday, February 13, 1920, 10 o'clock A. M.

Parties met pursuant to adjournment, at the hour of 10 o'clock A. M.

Present: TAYLOR E. BROWN, Esq., of Chicago,  
Representing Plaintiff's Counsel, Frederick S. Lyon;

WILLIAM A. LOFTUS, Esq., on Behalf  
of Defendants.

Thereupon the examination of the witness, J. W. Alvord, was resumed as follows:

(By Mr. BLAKESLEE.)

Q. 53. Have you been able to find any of your files and records concerning these matters of your pumps and pump patents and the early incidents connected with those matters?

A. Before answering counsel's question, witness again desires to enter a protest against the improper and unfair way in which he has been subpoenaed on short notice in this matter, at a time when he is

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laboring under great pressure of other professional matters and when he has had no opportunity to make any adequate or proper preparation in the matter.

Answering your question, I would say that I have had no opportunity to make any reasonable or proper search of the matters in question. I have looked up my diaries at my home for the years 1902 and '02, these being readily accessible. I also, in one file readily accessible at the office, discovered a paper memoranda made by me apparently [327] in preparation of a former case in this matter in which I testified, which somewhat refreshes my memory as to certain dates. That is all of the opportunity I have had for investigation, being, as I have said, much pressed with other matters and having been obliged to-day to cancel a very important engagement at Rockford, Illinois, in behalf of the city, to be present at this hearing.

Q. 54. Refreshed as your recollection has been in accordance with the statements of your last answer, can you now tell us when it was there was first a presentation to your mind of these matters referred to or concerned in your patent No. 735,690, for means for lining pump shafts in well casings, and I now hand you a copy of that patent, being Defendants' Exhibit "A-1."

By Mr. BROWN.—On behalf of the plaintiff' objections spread upon the record by Mr. Lyon to the deposition of the witness are here repeated, and at the risk of repetition the following objections are spread upon the record: The question apparently

(Deposition of J. W. Alvord.)

seeks to establish the date of conception of the invention of the witness, and if this is for the purpose of proving, or tending to prove, prior invention, the objection is made that the answer does not set up prior invention by the witness Alvord, and that therefore all testimony on the subject at this time is not germane to the issues and is immaterial. Further objection is made that the question is indefinite and irrelevant. [328]

A. I am unable to say when the presentation first arose in my mind, but it must have occurred some time after June, 1901, and before April 8, 1902, during which time I was interested in the subject of these patents and more or less thinking about them.

Q. 55. Is there any attendant circumstances or incident by which you fix, or by which you are assisted in fixing, the dates you have mentioned in your last answer, and, if so, state it.

By Mr. BROWN.—Same objection.

A. I find in my diary which I kept at that time, under date of April 8, 1902, the following entry: "Get a new idea in deep well pumping and take it over to John A. Cole & Sons. Am turned down." And under date of the following day, April 9, 1902, I find the following entry: "Take my idea to Porter and find interested backer. Says he will pay cost of an experiment. Talked to Meade." Under date of April 11, 1902, I find the following entry: "Work on my deep well pump idea."

Q. 56. Is that present or past tense?

A. "Work on my deep well pump idea." In one

(Deposition of J. W. Alvord.)

of my available files at the office I find a paper which has memoranda which I recognize as being a memoranda I made in preparation for appearing in a case in which I testified about the year 1911. I also find attached to such paper a piece of envelope stamped with the postmark "1911," upon which is written: "U. S. Circuit Court, Eastern District of Texas. Mahlon E. Layne, complainant, vs. El Campo Machine Company and W. T. Gray. In Equity, No. 503," which notation presumably was the title of the case in question. [329] On this paper, which shows at the time that I was a consulting engineer at 1212 Hartford Building, I find the following notes:

Q. 57. Let me interrupt you a minute. What date is that you mention?

A. There is no date on this paper. (Reading:) "Simmons paper read at Murray Hill Hotel, New York City, June 17 to 22/01." And again: "Letter to Whittlesey, April 23/02 for search." And again: "First signed pencil sketch of inclosed shaft, April 23/02." And again: "Completed drawing of impellor with inclosed shaft May 1/02." And again "Completed drawing July 1/02; attested before a Notary." And again "Application filed November 17/02, No. 131,663." And again: "Patent dated August 11, 1903, Patent No. 735,790." As far as I know at this time, these memoranda, made in my own handwriting, represent my search made at that time for authentic dates important in this matter, and are correct with one exception, that the note on the letter of the

(Deposition of J. W. Alvord.)

search rather than my request for the search, as evidenced by the reply in the same file in which this paper was discovered.

By Mr. BROWN.—Objection to the question is here repeated to the answer.

Q. 58. And when were these various memoranda made that you have told us about, with reference to the dates that you have mentioned in connection with the several memoranda?

By Mr. BROWN.—Same objection.

A. The entries in the diary were made on the day that is stated—April 8th, 9th and 11th, 1902. The dates on the memoranda I am unable to identify, as the memoranda has [330] no date upon it, the only identification being the fragment of an envelope which has a postmark stamp 1911 visible and remaining upon it.

Q. 59. Where has that diary been since the year 1902?

By Mr. BROWN.—Same objection.

A. It has been in my possession.

Q. 60. Can you tell us, now, what you did in connection with this search of April, 1902, which you say you made through Mr. Whittlesey?

By Mr. BROWN.—Same objection.

A. No, sir, I have no recollection about that other than he was my regularly employed attorney and made that and similar searches for me at that time.

Q. 61. And what, if anything, did you send Mr. Whittlesey in this connection?

By Mr. BROWN.—Same objection, and also as calling for hearsay and not the best evidence.

(Deposition of J. W. Alvord.)

A. I am unable to say.

Q. 62. You have no recollection of the means you took of laying before Mr. Whittlesey the thing you wishes search upon?

By Mr. BROWN.—Same objection.

A. No, sir, not at this time.

Q. 63. Have you any recollection now of testimony given in the one prior suit in which you have testified that you did testify concerning these matters, to wit: "This pencil sketch is dated April 23, 1902, and signed by me in my own handwriting, both date and signature"? Have you any recollection now of giving such testimony or that sketch?

By Mr. BROWN.—Same objection. [331]

A. I have no recollection of giving such testimony but the fact which you read accords with the memoranda to which I have testified.

Q. 64. You don't now remember the sketch?

By Mr. BROWN.—Same objection.

A. I remember the sketch, yes, sir.

Q. 65. Do you know where that sketch is to-day?

By Mr. BROWN.—Same objection.

A. No, sir, I do not.

Q. 66. Do you remember what you did with it at the times mentioned in your prior testimony and mentioned by you this morning, namely, in April, 1902?

By Mr. BROWN.—Same objection.

A. Well, I think I filed that sketch, together with the other sketches testified to, and perhaps some other papers which I regarded as important, in

(Deposition of J. W. Alvord.)

some special way, because they are not in the regular file which I naturally would turn to.

Q. 67. Have you made an attempt to find any such special file, if there exist such?

A. No, sir, I have had no time to do any special searching—only looked at those things which were readily found.

Q. 68. If there is any such special file, it is in your office at the present time?

By Mr. BROWN.—Same objection.

A. It may be and it may be at my house. I would be unable to say. [332]

Q. 69. How long do you suppose a search would require to unearth such special file, if it exists,—how extensive a search would you have to make?

By Mr. BROWN.—Same objection.

A. I would be unable to state. My office has been in continuous operation for over thirty years; the accumulation of material in it is very great. A large amount of material has had to be packed and stored away for lack of space in the active, operating part of the office. Some of those back records were packed in boxes and taken out to my house; others were packed in compact form and stored in the back part of vaults, and it has been the practice of the office not to keep in the active files correspondence more than the prior ten years; and it would be very difficult for me to say where most of this material is at this time.

Q. 70. Is there anyone who, of your knowledge, could competently assist you in making such search?

(Deposition of J. W. Alvord.)

By Mr. BROWN.—Same objection.

A. I think not. There is no one in my office now who would be familiar with the papers in question.

Q. 71. Then am I or am I not correct in understanding that the present time, if such sketch of April, 1902, exists, you do not know of its whereabouts?

By Mr. BROWN.—Same objection.

A. I am unable to lay my hands on it at the present time. I feel almost certain that it is in my possession.

By Mr. BROWN.—Same objection.

A. I don't know at what place. [333]

Q. 73. Now, would it be possible for you now to make a rough reproduction of that sketch, or to make a sketch which, from your recollection, would show substantially the matter of such sketch of April, 1902?

By Mr. BROWN.—Same objection.

A. No, sir, it would not. That is, I would not be willing to take the chances of repeating a sketch which was prepared nearly twenty years ago—although I think I recall its general appearance and character. A photographed copy of this sketch was made at the time of this other litigation and I suppose was filed in that case to which I have referred.

Q. 74. Did you compare that photograph copy with the sketch which you yourself made?

By Mr. BROWN.—Same objection.

A. Well, I naturally presume that I had done so, but I could not testify absolutely to that.



(Deposition of J. W. Alvord.)

Q. 75. To your recollection, was it or was it not a correct photograph of that sketch?

By Mr. BROWN.—Same objection.

A. My natural inclination would be to say it was a correct copy of the sketch.

Q. 76. Well, have you recollection now—

A. —It was so accepted by both the parties in interest at the time.

Q. 77. Have you recollection now of its correctness—as to its correctness?

By Mr. BROWN.—Same objection.

A. No, I do not have any recollection. It is difficult for me now to even recollect very much about the sketch. [334]

Q. 78. Does there remain in your mind any recollection of the substance of this April, 1902, sketch which you could reproduce roughly by pencil and paper at this time, as to the general outline of parts, sufficient to give us an inkling of the structure portrayed?

By Mr. BROWN.—Same objection.

A. No, I would not attempt to do that, because I have not seen that sketch since the date of this litigation, presumably about 1911, and I would be afraid that my memory would fail me.

Q. 79. Referring, now, to Defendants' Exhibit "A-1," your patent No. 735,690, can you, by looking at same, recall any feature or part, or features or parts, thereof which were included or indicated in that sketch?

By Mr. BROWN.—Same objection.

A. Well, I have the recollection that this sketch

(Deposition of J. W. Alvord.)

was of the inclosed shaft and method of alignment, and that it was in all its main characteristics similar to the sketch produced in the patent, but I am unable to—

Q. 80. Which figure?

By Mr. BROWN.—Same objection.

A. Figure 1.

Q. 81. Then will you please state in your own language, in line with your last answer, what the parts were generally represented in that sketch, so that we may have it in your own words rather than by reference to the drawing of the patent.

By Mr. BROWN.—Same objection.

A. The parts of the sketch, so far as I can recollect them now, showed an outer casing of an ordinary deep well, a shaft in the center extending down to the pump, and a casing [335] inclosing the shaft, and a device for locking the inner casing surrounding the shaft in vertical alignment.

Q. 82. Do you recall, or do you not, anything pertaining to that sketch which has to do with the lining of the shaft or positioning it for service?

By Mr. BROWN.—Same objection.

A. Well, it had means showing for setting a wedge, when the shaft was in position, which would lock it in alignment.

Q. 83. Have you any recollection as to what the shaft turned in, and, if so, how those parts were arranged?

By Mr. BROWN.—Same objection.

A. The shaft turned inside of an inner casing which entirely surrounded it from top to bottom.

(Deposition of J. W. Alvord.)

Q. 83. And have you any recollection as to the bearings of the shaft?

By Mr. BROWN.—Same objection.

A. The bearings of the shaft were subject to another patent than the one we are discussing and were not shown in that sketch, but were shown in another drawing made in full and dated and signed by me as of May 1, 1902.

Q. 85. And do you know where that drawing is now?

By Mr. BROWN.—Same objection.

A. That drawing is evidently in the same file as the sketch we have been just discussing.

Q. 86. Can you state from recollection what the showing of that drawing of May 1, 1902, was, with respect to the mounting of the shaft or in any other respects in which you recollect it?

By Mr. BROWN.—Same objection. [336]

A. No, sir, I don't think I could without refreshing my memory. I recall that drawing No. 2, a reproduction of which appears from my minute was filed in the prior case in 1911, was essentially the drawing embodied in one of the simultaneous patents.

Q. 87. You mean one of those three which have been introduced in evidence here—Defendants' Exhibits "A-1" "A-2" and "A-3"?

By Mr. BROWN.—Same objection.

A. Yes, sir.

Q. 88. Will you kindly refer to these exhibits and select the patent to which you have referred.

By Mr. BROWN.—Same objection.

(Deposition of J. W. Alvord.)

A. It was a drawing essentially similar to the figure shown in the patent in Exhibit "A-2," patent 735,691.

Q. 89. Let me ask you again if you have any reason to believe that within the next week or two it would be possible for you to extend your search far enough to find this file in which you think these two sketches made by you probably are contained?

By Mr. BROWN.—Same objection.

A. I doubt it, as I have a large number of very important matters pressing on my attention just at this time, in which I am under contract to several large municipalities, and I feel that my time is not my own under those conditions. Given opportunity and time for examination, I am quite certain all these and other matters are subject to discovery in my files somewhere or other. [337]

Q. 90. Do you remember any other or further steps you took in connection with these matters of your three patents, copies of which are in evidence here as Defendants' Exhibits "A-1," "A-2" and "A-3"—next in order after the making of these sketches and drawings you have referred to?

By Mr. BROWN.—Same objection.

A. Not at this moment. There was undoubtedly a sequence of events, a record of which has been made, during the summer of 1902, leading up to the application for letters patent.

Q. 91. Have you any other recollection at this time of any such acts on your part?

By Mr. BROWN.—Same objection.

A. No, I have not, except that in a general way

(Deposition of J. W. Alvord.)

we pushed the matter continuously until the apparatus was built and was tested, and at the same time Mr. Whittlesey prepared the sketches and made applications for the patent, as shown by the record in the Patent Office.

Q. 92. Now, will you kindly state what the function and purpose of the inclosing tubing for the shaft was and the bearings for the shaft, as shown in the early sketches of the spring and summer of 1902.

By Mr. BROWN.—Same objection.

A. Well, so far as I can recollect about the matter, the inclosing casing around the shaft was designed to prevent grit or sandy sand from cutting the bearings; also to keep the rising water from eddying around the moving shaft.

Q. 93. Was or was there not any lubrication provided for or contemplated in these matters in the spring and summer of 1902?

By Mr. BROWN.—Same objection. [338]

A. The matter of lubrication was under consideration, and, to the best of my knowledge, I had at one time in mind that the space between the shaft and the casing, inclosing the shaft might be made the means of oil lubrication, but I became convinced that under the circumstances this was not necessary. I did not mention it in my patents, so far as my knowledge of the patents goes; I have not read them for many years.

Q. 94. For what reason did you believe that lubrication was not necessary?

By Mr. BROWN.—Same objection.

A. Because experience had seemed to show that

(Deposition of J. W. Alvord.)

water lubrication would be sufficient, particularly if the water was not impregnated with sand or grit or other substances which would injure the bearings.

Q. 95. Reading from your testimony in the other suit in which you have said you testified, in answer given by you to Q. 3, I quote as follows:

“Some time before August 1, 1902, I consulted with a mechanical draftsman and engineer named George W. Scott, who then had offices in the Rookery of Chicago, and employed him to prepare working drawings of a full-sized test pump to be built and operated for test purposes, but as nearly as practical of a size and character as could be later used for well purposes.

“The working drawing of this pump bears date August 21, 1902, and shows, first, a standard at surface having bearings and containing a shaft and pulley shown to be connected by belt to an electric motor. The shafting after leaving these bearings enters the elbow of the pipe used for conveying the water to the surface reservoir, this connection being through a water-tight joint. The shaft then passes down through the center of this water-pipe and is enclosed in the same by means of a surrounding casing extending from the top of the pipe to the pump at the bottom of the pipe, in such a manner as to completely exclude the water in the riser pipe from coming in contact with the shafting. At the bottom [339] of the riser pipe is shown an impellor pump attached to same, of the

(Deposition of J. W. Alvord.)

same type and detail as shown in Figure 25 of patent No. 735,692, issued to me August 11, 1903."

Will you state, please, whether you so testified in that other suit?

By Mr. BROWN.—Same objection.

A. I would not be able to testify that that was my testimony in the other suit. I have no copy of my testimony in the other suit; I have had no opportunity to know what I did testify in that suit with any certainty. The paper you hand me has all the appearance of being testimony given by me; that is all I can say, and, so far as you read it, has the appearance of an accurate description.

Q. 96. What, if anything, is your present recollection as to the matters in that testimony to which I have just directed your attention?

By Mr. BROWN.—Same objection.

A. I have very little recollection about that case, and I had completely forgotten that case at the time you parties called my attention to it here some few weeks ago.

Q. 97. With respect to the recitals in that testimony, what, if any, is your present recollection as to any part of it, namely, the part I have just read?

By Mr. BROWN.—Same objection.

A. Well, I should not like to give an opinion on that without the opportunity of a careful study.

Q. 98. We don't ask an opinion, but what your recollection is.

By Mr. BROWN.—Same objection. [340]

A. I should either ask that I be shown a certified

(Deposition of J. W. Alvord.)

copy of the testimony or be able in some way to identify it in my own office records, or have the opportunity to study and check it with what I know to be accurate and true.

Q. 99. Well, apart from that, have you any present recollection of any of the matters set forth in any of the testimony I have just read, and, if so, please state.

By Mr. BROWN.—Objected to for the reasons already stated, and for the further reason that the witness has already answered the question fully.

A. In a general way I remember the employment of Mr. George W. Scott, who prepared working drawings of a full-sized test pump. I have no recollection of the dates hereon but in a general way, as far as I can now recollect, the description of the pump would seem to me to be correct.

Q. 100. Have you any recollection as to the year when this pump last referred to was taken up between you and Mr. Scott?

By Mr. BROWN.—Former objection repeated.

A. Why, I am quite of the opinion that it was the year 1902, although I have no means of verifying that impression at this particular time.

Q. 101. Do you remember what, if anything, transpired in connection with this pump matter and Mr. Mr. Scott?

By Mr. BROWN.—Same objection.

A. No, I have no recollection about it, other than a general one that he was employed in the matter stated.

Q. 102. Quoting further from your testimony in



(Deposition of J. W. Alvord.)

answer to Q. 3, as given by you in the preceding suit, I read as follows: [341]

“The pump which was built from this drawing was installed in a power station at the yards of the Clearing & Transfer Company some time before the 1st of January, 1903, and the first test runs made of this pump were made January 2, 1903; it was thereafter tested with different types of impellers successfully for some six months, and was later presented to the University of Wisconsin for use in their hydraulic laboratory, where it now is.”

Did you or did you not so testify in that other suit?

By Mr. BROWN.—Same objection.

A. I should be unable to say. In a general way I know the pump was installed at the Clearing & Transfer Company yards and tested there for a considerable time, and was later presented to the University of Wisconsin. I might also add that it was made the subject of numerous tests by the University of Wisconsin and was the subject of a bulletin of considerable size published by them.

Q. 103. If these matters were continued for examination for a period of some ten days, would it be possible for you, after referring to a certified copy of your testimony and certified copies of exhibits introduced in evidence in connection therewith in the previous suit mentioned, to testify whether or not that was the testimony you gave in that suit?

By Mr. BROWN.—Same objection.

A. Why, undoubtedly, if I were presented with matters in the proper way, so that I could feel con-

(Deposition of J. W. Alvord.)

fidence from my recollection and knowledge that I was referring to an exact record of my testimony and exact duplicates of the exhibits, I could doubtless probably identify them as being such.

Q. 104. The principal object in the last question was to ascertain whether, at a time, say, ten days from date—or, to be specific, on the 23d of this month—you could conveniently appear before the present notary public and [342] make answer as to your previous testimony and the exhibits therein mentioned, if same were presented to you in certified form.

A. Witness again protests against the discourtesy of counsel in assuming that counsel's matters are predominating and controlling of the witness' time under the circumstances. There has been no attempt of counsel to consult with witness as to his disposal of his future engagements or his future contracts, or the pressing matters of his professional practice; and I am unable to say at this time whether I could or could not appear at any fixed date, fixed by counsel, as in the foregoing question.

Q. 105. My question aimed to exhibit courtesy and to arrange a time convenient to the witness hereafter to appear briefly and identify his previous testimony.

A. Witness insists that he has received no courtesy from the hands of counsel in this matter, and that he feels a very deep sense of the unfairness of counsel in the way and method and manner in which he has approached the whole subject, which obliged witness to testify to things about which he

(Deposition of J. W. Alvord.)

has had no opportunity to refresh his mind, which has seriously embarrassed his professional practice, obliged him to cancel most important and pressing engagements in which the vital interests of his clients are concerned.

Direct examination closed.

Cross-examination.

By Mr. BROWN.—The foregoing objections are here repeated to each of the questions asked and to the answers given, and notice is hereby given that motion will be made to strike [343] the entire deposition from the record as not being germane to the issues, as not being authorized under the order of the Master, and as being incompetent, irrelevant and immaterial to any issue joined in the cause.

Without waiving these objections, but insisting upon them, counsel asks the witness the following questions:

A.Q. 106. Referring to the 1902 machine and the invention set forth in your patent about which you have been interrogated on your direct examination, will you state whether or not you brought these, or either of them, to the attention of the Byron Jackson Machine Company or Machine Works, of Chicago and San Francisco, in the year 1902?

By Mr. BLAKESLEE.—Objected to as not cross-examination, calling for a conclusion on the part of witness, not a statement of facts, irrelevant, incompetent and immaterial.

A. I am unable to state whether the matter was brought to the attention of Byron Jackson Machine

Works in 1902. It was certainly brought to their attention later by me. It may have been brought to their attention in 1902. To the best of my knowledge and belief, it was brought in 1902, but I am unable to testify absolutely to the fact.

By Mr. BLAKESLEE.—We move to strike out the answer on each of the grounds stated in objection to the question.

Cross-examination closed.

(No cross-examination by Mr. Loftus.) [344]

By Mr. BLAKESLEE.—At this point an adjournment is taken until the hour at 10 o'clock A. M., Tuesday, February 24th, 1920, at the same place, at which time the present witness will be further interrogated as to the matter of his testimony given this morning and as to the testimony given by him in the other case in which he has testified he did testify, and as to such other matters as to which the present witness may be able to refresh his recollection during the interim. In the latter respects, would request the witness to make such further search as at all possible for the lost file or files, or misplaced file or files, or at present undiscovered file or files, or papers about which he has so far testified, and request him to be prepared on the 24th of this month to further testify in detail regarding these matters, and any matters to which his attention has been directed so far, and as to which he is at present unable to definitely testify.

The notary will now note an adjournment to the time and place mentioned, viz., 10 o'clock A. M., the 24th of February, 1920, before Hattie R. Lehman,

the present notary, and the witness is excused until that time and to appear at that time and place, viz., at Room 1503 Marquette Building, 140 South Dearborn Street, Chicago, Illinois.

By Col. BROWN.—The witness is here informed by opposing counsel that, in his opinion, this deposition is unauthorized under the present status of the case, [345] and that until he receives an order from the Master directing his deposition to be taken and directing him to make the search requested, he is under no obligation to make such a search or to spend any of his time at his own expense to elicit the information that defendants' counsel seems to be improperly seeking; that ample opportunity exists between now and the date mentioned for defendants' counsel to seek the proper order from the Master under whose authority these depositions were presumably taken, and to seek the enlargement of the scope of the order under which they were taken, if it be necessary to continue this hunting expedition; and that, in the opinion of counsel, the witness would be justified in refusing to accept the notice and to appear at the time and place mentioned and to give further evidence in this matter, unless instructed by the Court.

By Mr. BLAKESLEE.—Of course, counsel's statement is not testimony or evidence, and on its face it consists of an improper opinion which we do not understand to be competent for the Court to consider. We do not understand that in any respect this present witness is under the control or

direction of plaintiff's counsel, and we should assume that plaintiff's counsel would not wish that complexion to be put upon counsel's statements. The present witness is here under subpoena, and we stand upon the propriety of such procedure and insist upon the appearance of the witness [346] on the 24th of this month, as noted in now taking an adjournment. The witness is respectfully cautioned to appear at that time pursuant to the subpoena which has been served upon him in this matter. This is not a matter which counsel can opine about. The effect and force of such subpoena is a fact of more dignity and solemnity than counsel can have an opinion about. [347]

By Mr. LOFTUS.—In the case of Layne & Bowler Corporation vs. Western Well Works, Inc., et al., Equity 485, notice is hereby given that an adjournment will be taken until Tuesday, February 24th, at 10 A. M., to allow time for a certified copy of this witness' testimony, and exhibits in connection therewith, to be procured from the clerk of the court wherein the prior suit, in which this witness has testified, was filed. At the time mentioned, viz., February 24, 1920, the witness is requested to appear here before this same notary, at the hour of 10 A. M. whereupon the proceedings will be continued. He is cautioned that he is not excused under the subpoena but is expected to appear at the time noted and continue his deposition.

By Mr. BROWN.—Same objection. [348]

Tuesday, February 24, 1920, 10 o'clock A. M.

Parties met pursuant to adjournment.

Present: TAYLOR E. BROWN, Esq., Representing FREDERICK S. LYON, Esq., on Behalf of Plaintiff;

CLARENCE J. LOFTUS, Esq., Representing on Behalf of Defendants.

By Mr. LOFTUS.—Owing to the fact that the witness, John W. Alvord, is now engaged as a witness in another case in Chicago, in which the hearing is proceeding, known as the Chicago Telephone case, and states that it will be absolutely impossible for him to attend here this morning, and that he will not finish in the case in which he is now engaged until some time next Monday, it will be impracticable, if not impossible, for him to attend in the above-entitled cases until next Tuesday morning, March 2d, at which time he states he will be here and complete his deposition.

In view of this, an adjournment is therefore taken until Tuesday, March 2, 1920, at 10 o'clock A. M.

Tuesday, March 2, 1920, 10 A. M.

Parties met pursuant to adjournment. Present as before.

And thereupon an adjournment was taken until 2 o'clock P. M. on this day. [349]

Tuesday, March 2, 1920, 2 o'clock P. M.

Met pursuant to adjournment.

Present as before.

Thereupon the following proceedings were had.

By Mr. LOFTUS.—Notice is given that during

(Deposition of J. W. Alvord.)

or upon the completion of the examination of the witness, Alvord, the deposition of Mr. R. L. Otwell will be taken, in both the above-entitled cases, in behalf of the defendants.

JOHN W. ALVORD, recalled upon direct examination, testified as follows in answer to interrogatories propounded by Mr. Loftus:

R.D.Q. 107. Mr. Alvord, at the last meeting you were requested to bring in certain sketches, drawings and other data pertaining to your early work relative to deep well pumps. Have you with you such sketches and data? A. I have.

R.D.Q. 108. During your testimony heretofore in this case you were asked some questions which included quotations from what was alleged to be a copy of a former deposition given by you. In answer to some of these questions, your answers apparently were not positive and direct. Have you any explanation you care to make in this connection?

A. I was not at all satisfied that the copy of the deposition produced was, in fact, a full and complete copy, and upon being furnished with a certified copy I find, in [350] fact, that it was not a complete and full copy, and therefore I refuse to be bound by those quotations except that, so far as they were read to me, they seemed to be in accordance with the facts as I understood them.



(Deposition of J. W. Alvord.)

R.D.Q. 109. In order to get the facts regarding the early history of your work in connection with deep well pumps in a concise form, I wish you would please state fully the circumstances leading up to your early work on this line and describe fully the deep well pump invented or devised by you.

By Mr. BROWN.—Counsel inquires in behalf of Mr. Lyon whether it is the intention of the examiner to draw from this witness a statement of facts contrary to the statements made by the witness in the prior deposition which has been relied upon.

By Mr. LOFTUS.—No, not at all.

By Mr. BROWN.—If so, objection will be made to any attempt to vary the facts set up in that prior deposition.

A. The matter of the deep well pump was one which presented itself to my mind during the summer of 1901. There was obviously a need for better means for lifting water from deep artesian wells in Northern Illinois, and the region centering there, and there was no adequate apparatus at that time which would lift large quantities of water economically from such wells. My attention was first definitely called to the possibility of such an apparatus by a paper published [351] in the American Water Works Convention in the Summer of 1901, in which an attempt at Moscow, Russia, was the subject of a paper, and there was described there certain pumps inserted in wells for this purpose. It appeared to me, from a study of this paper, that these pumps were defective and could

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be improved upon, and during that year I revolved the matter over considerably. In about February, 1902, I was engaged by the President of the Chicago Clearing & Transfer Co., having large property interests southwest of Chicago and outside of the city limits, beyond the reach of any ordinary water supply, to investigate and report to him on the best methods of drawing water from wells in that neighborhood. I advised Mr. H. H. Porter, the president of the company, that this was a problem which was difficult because no appliance was then on the market which would adequately do this work, and that it was obviously desirable to invent and originate some appliance for the purpose. Mr. Porter encouraged me to look into the matter further, and on or about April 8th, as disclosed by me in former testimony at a former hearing, my diary shows that I adopted a definite idea for the purpose, and a day later disclosed this same to Prof. Daniel W. Mead, Professor of Hydraulic and Sanitary Engineering of University of Madison, Wisconsin. Sometime between the 8th of April and the 14th, I made certain sketches in a note-book in which I was recording investigations at Clearing for such a device. The first— There are three sketches in this note-book, and the first two of them I identify as being between the 8th and the 14th of April, 1902, because on the second page of the note-book I find the date reading as follows: "From Mr. Shire April 7, 1902," Mr. Shire being the [352] Chief Engineer of the Chicago Clearing & Transfer Co. at that time. On the page following

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the second sketch I find an entry reading as follows: "From Lawrence Machine Company April 17, 1902." The first of these sketches shows a horizontal section of a deep well with an inclosed shaft in the center, the shaft being 1 inch in diameter, the tube surrounding and inclosing the shaft being  $1\frac{7}{8}$  inches outside diameter, and the well being  $5\frac{3}{4}$  inches internal diameter. The apparent purpose of this drawing was to compute the area available for the flow of water after inclosing a shaft in the center of the well. The second sketch, two pages following in the same note-book, shows two vertical sections of a shaft and its inclosed casing. The section on the left shows the shaft with a coupling, an inclosed casing with the coupling, a bearing upon which the shaft revolves, and a screw device by which such inclosed shaft and casing can be adjusted so as to be vertical within a well whose walls are not exactly vertical. The drawing on the right also shows a vertical shaft, an inclosed casing with a shaft coupling, a casing coupling with interior screw coupling, and a wooden bearing upon which the shaft revolves. Sometime before April 23d—

R.D.Q. 110. Pardon me just a moment, Mr. Alvord. I wish you would describe the complete deep well pump that you had in mind at that time and the one that you explained to Daniel W. Mead, its manner of operation, and the general object you had in mind—what you were trying to accomplish—and how it operated. The sketches I notice are illustrative of certain parts. [353]

A. The apparatus which I had in mind at this

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time was an apparatus which was a deep well centrifugal or impellor pump attached to the lower end of a revolving shaft, which at its upper end was either belted to a motor or direct-connected to an electric motor. The size and character of the pump and the shaft in its inclosed tubing was such that it could be inserted in artesian wells of as low as 6 inches in diameter, and in wells from 100 to 200 feet deep if necessary, or of less depth. The purpose was to extract water from wells whose static level was considerably below the reach of suction lift at the surface of the ground, and it was the intention that such a pump and appliance should be adjustable, so that it could be lowered or raised as might be desired to reach the water without entering or digging down through the ground. It was also the purpose that the water rising in the well by means of the impellor pump should not come in contact with the shaft in any way, which would cause gritty water or sand to injure the bearings and cut them. It was also the intention to have an appliance which could be readily withdrawn from the well and examined and repaired. It was also the further intention to have a shaft and impellor which did not bear down upon any of the parts of the appliance, but which was floated on the rising water column by means of utilization of certain principles of hydrostatic pressure, thus eliminating friction and wear and tear.

By Mr. LOFTUS.—The two sketches referred to by the witness in the preceding answer are marked for identification as Defendants' Exhibit "A-4,"

(Deposition of J. W. Alvord.)

that being the first sketch, and Defendants' Exhibit "A-5," being the second sketch. [354]

By Mr. BROWN.—The exhibits are objected to as incompetent, irrelevant and immaterial, and also as not properly or fully proven.

R.D.Q. 111. Please refer to the sketches and data you have at hand relating to the early history of your deep well pump of the centrifugal type, taking them up in chronological order, and explain the apparatus disclosed in each of them, when they were made, by whom, and where.

A. The first sketch in question discloses a horizontal section of a well midway between the pulley or motor at the top and the pump at the bottom, and further discloses that there is a shaft down through the center of the well inclosed in a tube surrounding the shaft, protecting it from the water which is rising in the well due to the impellor pump at the bottom. This sketch in pencil was made by me in my own notebook on or between the date of April 7, 1902, and April 17, 1902. The book has been in my possession ever since those dates and no alteration whatever has been made to the original drawing and the figures surrounding it.

R.D.Q. 112. What title does this book have?

A. This book is entitled "Report on Water Supply for Chicago Clearing & Transfer Co., Summit, Ill., April, 1902."

R.D.Q. 113. Were all the entries in this book made by you, that you have referred to?

A. All that I have referred to, and all in the book with the exception of the last 20 pages or so, which

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are in the handwriting of my partner, Mr. C. B. Burdick, and relate to tests which he made on the pump after it was constructed.

R.D.Q. 114. Were all these entries made in this book, made by you, made at or about the date they bear or the date it appears? [355]

A. They were.

By Mr. LOFTUS.—The original sketch just referred to by the witness is offered in evidence as Defendants' Exhibit "A-4," and it is agreed that a photographic copy thereof, marked Defendants' Exhibit "A-4," may be substituted in lieu thereof for all intents and purposes; whereupon said photographic copy was so marked. The original sketch and book is submitted to the opposing counsel for examination.

By Mr. BROWN.—The exhibit is objected to as incompetent, irrelevant and immaterial, and also as not properly or fully proven.

R.D.Q. 115. Refer to the second sketch in this book and tell us what it illustrates, by whom it was made, and when and where.

A. The second sketch was made by me within the dates heretofore mentioned, of April 7, 1902, and April 17, 1902, and is partly in ink and partly in pencil. It refers to that portion of the apparatus situated midway between the motor at the top and the pump at the bottom of the well, and relates more particularly to the method of inclosing the shaft and keeping it in alignment while running, and the method of coupling the tubing together and of bearings for the shaft. This sketch was made

(Deposition of J. W. Alvord.)

by me at the time; it has not been altered in any way or touched, and has been always in my possession from that time to this day.

By Mr. LOFTUS.—The original sketch just referred to by the witness is offered in evidence as Defendants' Exhibit "A-5," and it is agreed that the photographic copy thereof marked Defendants' Exhibit "A-5" may be substituted in lieu thereof for all intents and purposes; whereupon said photographic copy was so marked, the original having been submitted to the opposing counsel for examination.

By Mr. BROWN.—Same objection.

R.D.Q. 116. Have you the original sketch to which you referred as being dated April 23, 1902, pertaining to your deep well? [356]      A. I have.

R.D.Q. 117. Please refer to this sketch, explain what is there shown; and in doing so I wish, Mr. Alvord, that you would please put the reference character on the different parts when you name them.

A. This sketch is a pencil sketch showing that portion of the apparatus between the pump below and the motor above, midway down the well, and shows as No. 1 the shaft; number 2, the inclosed tubing of the shaft; number 3, the outer casing of the well; number 4, a device for locking the shaft in alignment; number 5, the coupling of the shaft. This sketch bears in my own handwriting the date "April 23, 1902, John W. Alvord."

R.D.Q. 118. When was that date put there?

(Deposition of J. W. Alvord.)

A. It was put there at the time the sketch was made.

R.D.Q. 119. When was that?

A. That was the day as just read, April 23, 1902.

R.D.Q. 120. And in whose writing is that?

A. That is my writing.

R.D.Q. 121. And who made the sketch?

A. I made the sketch personally.

R.D.Q. 122. And where has that sketch been since April 23, 1902?

A. It has never been out of my possession.

R.D.Q. 123. Was it recently taken from your files?

A. It was taken from the original file, put in a special envelope, where it has remained in a tin box in my possession ever since. [357]

R.D.Q. 124. Please tell us just what the operation is of the mechanism for holding the shaft casing and shaft in any desired position in the well casing.

A. The mechanism is designed to keep the shaft and shaft casing in perfect alignment, although it may be inserted in a well which is not in true alignment. For this purpose, the shaft and shaft casing, after being carefully aligned on the surface, is lowered through the well and at certain intervals of 8 or 10 feet there are hinged lugs, shown in the drawing as figure 4, which fall outward against the inside of the casing of the well. By raising and lowering the shaft within the shaft tubing an inch or two, the couplings of the shaft engage and lower or raise the key which locks the lug that abuts the outside casing of the well, so that when the shaft



(Deposition of J. W. Alvord.)

is in position the lugs are securely locked at each interval with such alignment as the well affords at that particular place.

By Mr. LOFTUS.—The sketch is submitted to counsel for plaintiff for examination, and is offered in evidence as Defendants' Exhibit "A-6"; and it is agreed that a photographic copy may be made by the Examiner and the blue-print substituted for the original.

By Mr. BROWN.—Objection to the last exhibit repeated as to this one.

R.D.Q. 125. Have you a photographic copy of "A-6" and a print thereof?

A. I have and I herewith produce it. [358]

By Mr. LOFTUS.—The photographic copy, Exhibit "A-6," just produced by the witness, is offered in evidence as Defendants' Exhibit "A-6," and it is agreed that it may be used in lieu of the original for all intents and purposes, the original having been submitted to the opposing counsel for examination.

R.D.Q. 126. I call your attention again to the book to which you have referred, entitled "Report on Water Supply for Chicago Clearing & Transfer Co.," and ask you to state whether or not there are any other sketches in that book pertaining to your deep well, centrifugal pump. If so, please refer to it and state what it shows, describing the construction therein illustrated and the manner of operation.

A. Another and third sketch occurs in the book, which is made in pencil and which shows that por-

(Deposition of J. W. Alvord.)

tion of the apparatus midway between the pump at the bottom and the motor at the top of the well. A vertical section of the shaft, the tube inclosing the shaft, the outer well casing, the hinged lug which abuts against the outer well casing and inside of the tube around the shaft, the key which locks the lug in place, and also the coupling on the shaft which, by raising the shaft one or two inches, disengages the key and unlocks the shaft and inner tubing from the casing, so that the inner tubing can be raised and lowered. There is also shown a section of the well—horizontal section—showing that there are three such hinged lugs at each locking section of the inner shaft and tube. The sketch is marked on the top, "Invention of apparatus for centering shafting in artesian wells, made by J. W. Alvord, Winona, May 20, 1902. Witness, [359] J. B. Davidson; Inventor, John W. Alvord."

R.D.Q. 127. What is the reason for that notification of the sketch and when was it put there and where?

A. At this time I had either in my employ or recently in my employ a draftsman named Mr. Metzger, who had become a patent attorney, and who advised me that all my sketches and drawings should be signed, dated and witnessed, if possible. At the date mentioned, May 20th, I was in the city of Winona, Minnesota, and testifying in an engineering case there on another matter. During the interval in waiting for my testimony, I made this sketch; showed it to Mr. J. B. Davidson, who was also a witness with me in the case, and was also

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waiting to testify, and asked him to sign it as a witness. And the matter wholly arose because I desired to discuss with Mr. Davidson and disclose my invention to him at that time, and drew the sketch for that purpose.

R.D.Q. 128. Did you disclose and describe to him then and there, on May 20th, 1902, your invention in deep wells of the artesian type? A. I did.

R.D.Q. 129. Is that his signature appearing on this sketch in this book which you have before you?

A. It is.

R.D.Q. What, if anything, did you say to him at that time as to how it should operate or would operate?

A. I described to him in detail how the appliance was intended to operate.

R.D.Q. And after describing it to him, he signed it as a witness? A. Yes, sir. [360]

R.D.Q. 132. Where has that sketch been since it was made?

A. This sketch is in pencil, in my own hand; it has not been altered since it was made; it was made on the date mentioned, May 20th, 1902, and the notebook in which it was made has been ever since in my possession from that time to to-day.

R.D.Q. 133. Do you know where J. B. Davidson is not located?

A. I do not know Mr. Davidson's address at the present time.

R.D.Q. 134. The last you heard of him was when?

A. The last I heard of Mr. Davidson was that he

(Deposition of J. W. Alvord.)

was City Engineer of Kenosha, Wisconsin, some years ago.

R.D.Q. 135. For the benefit of the Court I wish, Mr. Alvord, you would describe generally that book you now have in your hand, which you have referred to in a previous answer.

A. The book in which all of these sketches were made, and many other entries relating to the particular investigation of the water supply of the Clearing & Transfer, is a small blank note-book, quadrille-ruled, about 6 inches by 3½ inches in size, bound in red imitation leather, and marked on the outside, "Chicago Transfer & Clearing Co. Water Supply." It is a standard office note-book, such as has been used by me and my firm for the last twenty years, in entering notes of investigations and studies of engineering appliances.

R.D.Q. 136. And were all these entries appearing in this book kept in the regular course of your business entered about the date they bear? [361]

A. They were.

By Mr. LOFTUS.—The original sketch just referred to by witness is offered in evidence as Defendants' Exhibit "A-7," and it is agreed that the photographic copy thereof, marked Defendants' Exhibit "A-7," may be substituted therefor and used in lieu of the original for all intents and purposes; whereupon said photographic copy was so marked, the original sketch having been submitted to the opposing counsel.

By Mr. BROWN.—The exhibit is objected to as incompetent, irrelevant and immaterial, and also as

(Deposition of J. W. Alvord.)

not properly or fully proven.

R.D.Q. 137. I call your attention to a tracing which you have handed me, and I will ask you to state, if you know, what it illustrates, by whom it was made, when and where, and whether or not you ever used that tracing in disclosing the deep well pump designed by you to anyone, and, if so, whom.

A. This tracing which you now show me is a tracing which was made in my office in the Hartford Building by a draftsman under my direction, from an original scale drawing made personally by me. It discloses the final arrangement of my idea for inclosing the shaft and locking the shaft and inclosed tubing in a deep well by means of the devices outlined in the sketches heretofore described. The tracing is marked in my own handwriting, "Drawing of new device for centering shafting in artesian wells, invented by John W. Alvord, July 1, 1902." The tracing is further witnessed before a notary public, Mr. R. L. Otwell, on the date of [362] July 1, 1902, and is stamped with his notarial seal. This tracing has been in my possession, in my office, ever since that time and is unaltered from the time it was originally made. It discloses that portion of the apparatus midway between the pump at the bottom and the motor on the top of the well on the ground, and shows in vertical section a shaft, the tubing inclosing the shaft, the outer casing of the well, the hinged lug which drops against the outer casing, the key which locks the hinged lug in position, the coupling of the shaft which by riding the shaft engages the key and

(Deposition of J. W. Alvord.)

locks and unlocks the hinged lug, and a bearing between the shaft and the inner tubing made of a movable wooden wedge adjusted by a setscrew. There are also two horizontal sections showing that there are three such lugs at each interval, and there are also two horizontal sections showing the arrangement of the bearing within the inner tubing.

R.D.Q. 138. What, if anything, did you say to Mr. Otwell at the time of showing him that drawing, when it was acknowledged before him as notary public, and what connection did Mr. Otwell have with you at that time?

A. Mr. R. L. Otwell at that time was entering the practice of law and had office room in my office, and was doing part of his time stenographic work for me. I disclosed to him at that time that this was an invention which I had developed for the apparatus of deep well pumps and the alignment and protection of shafting by inner tubing, and asked him to put the proper notarial certificate and sealing upon the drawing as witnessing to those facts.

R.D.Q. 139. And he did so acknowledge it on that date? A. He did. [363]

By Mr. LOFTUS.—The original tracing which has just been referred to by the witness, and acknowledged before a notary public on July 1, 1902, is offered in evidence as Defendants' Exhibit "A-8," and it is agreed that a blue-print thereof, marked Defendants' Exhibit "A-8," may be substituted therefor for all intents and purposes, whereupon said blue-print was so marked. The original tracing to which the witness has just referred is submitted

(Deposition of J. W. Alvord.)

to opposing counsel for examination.

By Mr. BROWN.—The exhibit is objected to as incompetent, irrelevant and immaterial, and also as not properly or fully proven.

R.D.Q. 140. I call your attention to the blue-print which has been marked as Exhibit "A-8" and will ask you to describe the construction there illustrated, giving a reference character to the different parts.

A. Referring to the vertical section of the shaft marked 1, the tubing inclosing the shaft marked 2, the outer casing of the well marked 3, the hinged lug engaging the outer casing of the well marked 4, the key which locks the hinged lug in place marked 5, the coupling of the shaft marked 6, the wooden bearing between the shaft and the inner casing marked 7, the setscrew adjusting the wooden bearing marked 8; referring again to the two horizontal sections, I mark the shaft in both cases as 1, the inner tubing in both cases as 2, the outside casing of the well in both cases as 3, the hinged lug engaging the outer casing in both cases as 4, and the key locking the hinged lug in place in both cases [364] as 5; and referring to the two horizontal sections of the bearing, I mark the shafting in both cases as 1, the inner tubing around the shafting in both cases as 2, and the bearing in the lower section as 3 and the setscrew adjusting the bearing in the upper of the two sections as 4.

R.D.Q. 141. The blue-print of Exhibit "A-8," which you have just marked, is an exact reproduction of the original tracing, is it not? A. It is.

(Deposition of J. W. Alvord.)

R.D.Q. 142. Did you ever have the device illustrated in Exhibit "A-8" patented in the United States? A. I did.

R.D.Q. 143. When was it patented and what is the number of the patent?

A. A patent application was filed November 17, 1902, and granted August 11, 1903, as No. 735,690.

R.D.Q. 144. If you have any further drawings or sketches pertaining to this deep well devised by you, please refer to them, describing the construction illustrated in each of them, telling when and where they were made and by whom.

A. On the 1st of May, 1902, I made a drawing of the lower part of the apparatus known as the impellor pump. This drawing was traced by a draftsman in my office, under my direction, and the original tracing which I produce here was marked by me in my own handwriting, "Balanced Deep Well Pump designed and patented by John W. Alvord, Sanitary Engineer, Chicago, May 1, 1902." The tracing shows the impellor pump marked 2, the shafting reaching up to the surface marked 30, the inclosing tubing around the shafting marked 17, and an outer casing marked 12. [365]

R.D.Q. 145. When was that made?

A. This drawing was made by me on the date of May 1, 1902, and has been in my possession, in my office in the Hartford Building ever since, and has not been altered in any way save that some time subsequent to the issuance of the patent the numbers of the patent drawing, describing the different parts, were copied upon the tracing by my draftsman.



(Deposition of J. W. Alvord.)

R.D.Q. 146. To which patent do you refer?

A. I refer to patent 735,691, issued August 11, 1903.

R. D. Q. 147. Have you here a blue-print of the tracing? A. I have.

R. D. Q. 148. In whose handwriting is the description on the original tracing?

A. It is my handwriting.

By Mr. LOFTUS.—The original tracing referred to by the witness is offered in evidence as Defendants' Exhibit "A-9," and it is agreed that a blue-print marked "A-9" may be substituted therefor for all intents and purposes. The original is submitted to opposing counsel for examination.

By Mr. BROWN.—The exhibit is objected to as incompetent, irrelevant and immaterial, and also as not properly or fully proven.

R.D.Q. 149. Have you any other drawings, Mr. Alvord, that refer to the early history of your deep well, centrifugal pump?

A. Some time prior to August, 1902, I employed a mechanical engineer by the name of Mr. George W. Scott, [366] having offices in the Rookery in Chicago, to make a working drawing of a full-sized pump as near as practicable to that which would be needed for artesian well installation, for the purpose of testing the invention. This working drawing was produced by him as of date of August 21, 1902, and the blue-print which I here have is a blue-print of the original tracing, which is not now in my possession but retained in the files of Mr. Scott.

(Deposition of J. W. Alvord.)

R.D.Q. 150. Do you know where Mr. Scott is now?

A. I do not. The drawing shows a frame at the surface of the ground holding the upper end of the shaft and to which is attached a pulley with belt and arrow-marked motor. The shafting thus driven passes down through the pipe corresponding to the well casing and the shafting is inclosed in a tube surrounding it, so as to prevent the water rising through the casing from coming in contact with the shaft or its bearings in any way. The lower part of the left-hand drawing discloses a cross-section of the impellor pump which was so designed as to float upon the rising water column by admitting the hydrostatic pressure below certain portions of the pump.

R.D.Q. 151. Has that particular blue-print which you have in your hand been in your possession continuously since August 21, 1902?      A. It has.

R.D.Q. 152. Had you, prior to that time,, disclosed and described to Mr. George W. Scott, at Chicago, Illinois, the entire construction and manner of operating of your deep well centrifugal pump, concerning which you have been testifying?

A. I had. [367]

R.D.Q. 153. And from that disclosure he made this drawing of which the blue-print you now hold is an exact copy?      A. He did.

By Mr. LOFTUS.—The blue-print just referred to by the witness is offered in evidence as Defendants' Exhibit "A-10," and it is agreed that the photographic copy marked "A-10" may be substituted

(Deposition of J. W. Alvord.)

in lieu thereof for all intents and purposes.

By Mr. BROWN.—Same objection.

R.D.Q. 154. Have you tried to locate George W. Scott, who made one of these drawings?

A. Yes, sir.

R.D.Q. 155. Without success? A. Yes, sir.

R.D.Q. 156. What is the size of the original blueprint to which you have just referred—the size of the sheet, approximately? A. 17x23.

R.D.Q. 157. What is the size of the photographic copy? A. About 10x8.

R.D.Q. 158. So that in making the photographic copy they reduced the size of the drawing?

A. They have.

By Mr. LOFTUS.—The original is submitted to opposing counsel for examination.

R.D.Q. 159. Were there any other features of this deep well pump patented, and, if so, when and what was the number of the patent? [368]

A. There was a still further patent, No. 735,692, granted on August 11, 1903, showing the pump at the bottom of the shafting with somewhat different shaped design of impellor, but showing the same shafting and inclosed tubing of the shafting within the well casing.

R.D.Q. 160. In all these arrangements, at the very outset, as I understand, you had a driving shaft as a shaft which drove the centrifugal pump, which shaft ran up above the surface with a pulley on the upper end for the purpose of operatively connecting with some kind of motive power, and this shaft was housed by means of a shaft casing or tubing.

(Deposition of J. W. Alvord.)

A. Yes, sir.

R.D.Q. 161. Then outside of that shaft casing or tubing was the well casing?      A. Yes, sir.

R.D.Q. 162. That was true in all instances?

A. Yes, sir.

R.D.Q. 163. In every sketch and drawing from the very outset; and that is shown in every patent?

A. Yes, sir, it is shown in every drawing.

R.D.Q. 164. Before applying for an application for patent on your deep well pump, what, if any, correspondence did you have with your then patent counsel?

A. Some time prior to the 23d of April, 1902, I wrote to Mr. George P. Whittlesey, patent attorney, Washington, D. C., and asked him to make a search in the Patent Office for the state of the art. On April 23, 1902, I received a reply from Mr. Whittlesey's assistant, Mr. Whittlesey being absent at that time giving a report and sending me copies of patents which disclosed the then state of the art. [369]

R.D.Q. 165. Have you the letter which you wrote Mr. Whittlesey?      A. No, sir, I have not.

R.D.Q. 166. Have you searched for it?

A. Yes, sir.

R.D.Q. 167. Been able to find it?

A. Not been able to find it, because apparently the correspondence of that date has not been kept in the office.

R.D.Q. 168. Have you the letter received from Mr. Whittlesey reporting on the search?      A. I have.

R.D.Q. 169. Will you produce those letters, please?

(Deposition of J. W. Alvord.)

A. I herewith produce them.

R.D.Q. 170. I call your attention to the two letters, one dated May 3, 1902, and the other April 23, 190—.

A. The first letter, apparently the stenographer omitted the final "2" of the 1900. The second letter shows that the date of May 13, 1903.

R.D.Q. 171. Which letter was received first?

A. The letter dated April 23, 190—.

R.D.Q. 172. In that letter he states: "Your recent favor in regard to Improved Pump for Artesian Wells, etc., came duly to hand." To what did he refer?

A. He referred to a letter which I had written to him disclosing my invention and asking for information as to the state of the art, asking for a search.

R.D.Q. 173. In your letter did you disclose and describe the deep well centrifugal pump concerning which you have here been testifying?

A. Yes, sir. [370]

R.D.Q. 174. And it was on that device that he made his preliminary search? A. Yes, sir.

By Mr. LOFTUS.—The two original letters are offered in evidence as Defendants' Exhibit "A-11," and it is agreed that the copies marked Defendants' Exhibit "A-11" may be substituted therefor for all intents and purposes. The exhibits are submitted to opposing counsel for examination.

R.D.Q. 175. This is the same Whittlesey who later acted as your attorney in obtaining your three patents for you, to which you have referred?

A. It was.

(Deposition of J. W. Alvord.)

R.D.Q. 176. To what extent, Mr. Alvord, have deep well pumps been manufactured and sold in the United States, embodying the features described and claimed in your patent 735,690?

By Mr. BROWN.—Objected to as immaterial.

A. They have been sold and used extensively in the rice fields in Louisiana, in the irrigated districts of Florida, in the artesian well belt of the Chicago Central District of the County, and at other water-works throughout the country.

R.D.Q. 177. You referred to a drawing which has been marked Defendants' Exhibit "A-10," as illustrating a deep well centrifugal pump and complete operative connections, which drawing I believe you stated was made for the purpose of testing these apparatuses? A. Yes.

R.D.Q. 178. Was that apparatus built and tested?  
[371]

A. The apparatus was built as drawn by Mr. Scott, and was tested at the Clearing & Transfer Co.'s yards in December of 1902.

R.D.Q. 179. Where was that—Chicago, Illinois?

A. Just outside of and southwest of the city limits of Chicago.

R.D.Q. 180. How did the construction which was tested in December, 1902, just outside of Chicago, Illinois, compare with the construction illustrated in Exhibit "A-10"?

A. The drawing was precisely followed in the construction.

R.D.Q. 181. And with what success did it operate? A. It operated with complete success.

(Deposition of J. W. Alvord.)

R.D.Q. 182. I believe you stated in your testimony that you disclosed your deep well centrifugal pump to Daniel W. Mead. Where and when did you make your first disclosure to him, and substantially how was it described to him?

A. The extract from which I read in my prior testimony from my diary, as of April 8th, mentioned "Talked to Mead." I recall that Prof. Mead came into my office on or about that time, and that I described to him fully what I had in mind in the way of deep well pumping apparatus, inclosed shafting and balanced impellor. I had prior to this time talked to Prof. Mead from time to time about the need for such an appliance and the advantages of it.

R.D.Q. 183. Did you use any sketches or drawings in describing this to him at that time?

A. I don't recall whether I did or did not. [372]

R.D.Q. 184. He understood it from your description? A. Yes, sir, he understood it.

R.D.Q. 185. In this deep well pump of yours, can the piping in the pump be all assembled in proper shape before inserting it in the well, and was that your intention from the outset?

A. Yes, sir, it was. The whole assembly can be made on the surface of the ground and the pump can be inserted in a tubular well.

R.D.Q. 186. Can the pump be placed in any desired position in the well and there held?

A. It can.

R.D.Q. 187. And what means have you provided for that, to accomplish that result?

A. By shortening or lengthening the shafting and

(Deposition of J. W. Alvord.)

tubing which is built in sections and come together.

R.D.Q. 188. And what actually holds it in the particular position in the casing?

A. The hinged lugs and the locking key, which are operated as I have heretofore testified.

R.D.Q. 189. Can it be raised and lowered by manipulation from the surface? A. It can.

R.D.Q. 190. And can the length of the piping leading from the pump to the surface be adjusted?

A. It can, by removing sections, as I have heretofore described.

R.D.Q. 191. And is the centrifugal pump operated from the point above the surface?

A. It is. [373]

R.D.Q. 192. In your device shown in your patents, and in all the sketches to which you have referred, from the very outset, did you illustrate a pump casing—that is, did you have a pump casing in mind or illustrate one? A. I did.

R.D.Q. 193. Did you have in mind or illustrate a rotary pump? A. I did.

R.D.Q. 194. Did you have a closed casing surrounding the pump and shaft? A. I did.

R.D.Q. 195. Did the casing surround the shaft from the top of the well? A. Yes, sir.

R.D.Q. 196. Have you had any negotiations with anyone connected with the Layne & Bowler Company relative to your three patents which have been offered in evidence here as Defendants' Exhibits "A-1," "A-2" and "A-3"?

By Mr. BROWN.—Objected to as immaterial.

A. I have.



(Deposition of J. W. Alvord.)

R.D.Q. 197. Just tell us fully what the negotiations were and when they took place and what was said and done; who represented the Layne & Bowler Co.?

A. On the 2d of February, 1920, Mr. J. B. Harmon, whose card left with me shows him to have been sales engineer of the Layne & Bowler Co. with headquarters at Memphis, Tenn., called at my office and took up the matter of my patents in connection with his own company's operation. Mr. Harmon represented that, in his opinion, Messrs. Layne & Bowler were [374] developing their ideas in the Patent Office on or about the time when I was at work similarly in developing my ideas. Mr. Harmon inquired what I would expect to receive for my patents in the matter and I named him a price of \$5,000. Thereupon he asked me if I would give him a short option on that amount, and I gave him a thirty-day option for the purchase of the patents. Mr. Harmon represented to me that those patents would be quite valuable to his company; that they were doing a large business in the sale of these pumps, amounting, as he said, to some \$3,000,000 per year, and that the rice industry could not have been promoted without the use of the pumps in question and the improvements which they and I had made. He further stated that if the Layne & Bowler Co. should own my patents they could undoubtedly collect royalty from other companies who were using the same, and that he could recommend to Mr. Layne promptly the purchase of my three patents. Whereupon I had written out my

(Deposition of J. W. Alvord.)

proposition in writing, signed it and gave it to him on that date.

R.D.Q. 198. Have you got a copy of that proposition or letter? A. I have.

R.D.Q. 199. The letter just handed me by the witness. This is a carbon copy of the proposition you dictated, signed and delivered to J. E. Harmon, Sales Engineer, Layne & Bowler Co., on February 2, 1920? A. It is.

By Mr. LOFTUS.—The copy is offered in evidence as Defendants' Exhibit "A-12," and it is agreed that a copy marked Exhibit "A-12" may be substituted in [375] lieu thereof for all intents and purposes. The plaintiff is called upon to produce the original in the event any objection is made to the use of the copy.

By Mr. BROWN.—Same objection.

R.D.Q. 200. What, if anything, did Mr. Harmon say as to the Layne & Bowler Co. infringing these patents of yours which have been offered in evidence here?

By Mr. BROWN.—Same objection; irrelevant and immaterial.

A. I don't recall that he admitted other than as I have stated, that he felt that Layne & Bowler were developing their ideas in the Patent Office a little later, but at nearly the same time as I was developing mine. He gave me to understand that he felt that my ideas were, perhaps, a little earlier than Messrs. Layne & Bowler's.

R.D.Q. 201. In this apparatus which you disclosed to Mr. Mead and others, and particularly to

(Deposition of J. W. Alvord.)

Mr. Otwell on July 1, 1902, as shown by defendants' Exhibit "A-8," does that construction comprise a combination of a well casing, a line shaft for the pump closed off from the water in the well?

A. It does.

R.D.Q. 202. What did you do with that pump you tested out at the Clearing place?

A. That was presented to the University of Wisconsin and is now in Prof. Mead's hydraulic laboratory.

By Mr. LOFTUS.—I think that is all. [376]

By Mr BROWN.—The objections first noted to the deposition of this witness are here repeated, and the notice of motion to strike the deposition from the file, for the reasons before stated, is here repeated.

Cross-examination waived.

Deposition closed. [377]

**Deposition of R. L. Otwell, for Defendants.**

R. L. OTWELL, a witness produced on behalf of the defendants, being first duly sworn, testified as follows:

Direct Examination by Mr. LOFTUS.

Q. 1. Your name? A. R. L. Otwell.

Q. 2. Residence? A. Chicago, Illinois.

Q. 3. Occupation? A. Lawyer.

Q. 4. Were you, during the years 1903 and '03, associated with J. W. Alvord, the witness who just preceded you in this case? A. Yes, sir.

Q. 5. In what capacity?

A. I rented an office of him, beginning May 1,

(Deposition of R. L. Otwell.)

1902, and as a consideration for that office I agreed to do his stenographic work.

Q. 6. So that at that time you were in pretty close touch with him?

A. At that time I was simply a stenographer.

Q. 7. But you knew what was going on?

A. I knew what was going on; yes, sir.

Q. 8. Did he disclose and describe to you a deep well of the centrifugal type, which he claimed to have devised during 1902, and, if so, when and how did he describe it to you and what did he use? [378]

A. I had heard more or less talk in the office of his ideas on a deep well pump, and on July 1st he came to me with a tracing and explained that it was in connection with a deep well pump—a method of aligning the shaft of a deep well pump—and asked me to put an acknowledgment or an affidavit, some way of perpetuating some testimony of his efforts thus far.

Q. 9. I call your attention to an original tracing which was produced here by Mr. Alvord and offered in this case as Defendants' Exhibit "A-8," and ask you to examine it and state what you know about it.

A. That is the tracing, and in the corner of it there I put an acknowledgment, and Mr. Alvord acknowledged it before me, and I put my seal on it as a notary public, on July 1, 1902.

Q. 10. Is the affidavit in your handwriting?

A. That is all in my writing; yes.

Q. 11. And does your seal appear upon it?

A. That is my notary seal.

(Deposition of R. L. Otwell.)

Q. 12. And in whose handwriting is the inscription at the right of the affidavit?

A. That is Mr. Alvord's handwriting.

Q. 13. Is the blue-print which has been marked in the case in lieu of the original tracing an exact reproduction thereof except for the characters the witness has affixed in red pencil.

A. It appears to be an exact blue-print of the other with the exception of the red figures additional in the blue-print. [379]

Q. 14. The affidavit on the original in your handwriting and your signature and the inscription to the right of it are all in ink, are they not, on the original tracing? A. They were in ink.

Q. 15. And the tracing is done in ink?

A. Yes, sir.

Q. 16. Did you understand at the time this was shown and described to you, when you took Mr. Alvord's acknowledgment on July 1, 1902, that there was to be a centrifugal pump near the bottom of the well and that the shaft must be driven by some motive power above the surface?

By Mr. BROWN.—Objected to as leading.

A. Yes, sir.

Q. 17. So that you fully understood—

A. Well, I wouldn't say that I fully understood it, but I understood that much of it.

Q. 18. You understood the aligning arrangement of the shaft?

A. Yes, sir, I thought I did that.

By Mr. LOFTUS.—I guess that is all.

By Mr. BROWN.—No cross-examination.

Deposition closed.

Whereupon an adjournment was taken subject to further notice, and this ends the proceedings before the present notary. [380]

State of Illinois,

County of Cook,—ss.

I, Hattie B. Lehman, a notary public in and for the county of Cook and State of Illinois, duly commissioned and authorized, and residing in said Chicago, County of Cook and State of Illinois, do hereby certify that the foregoing depositions of John W. Alvord and R. L. Otwell were taken before me as notary public, commencing at the hour of 5 o'clock P. M., Wednesday, February 11, 1920, and were taken and continued until completed at the times and places noted in the record; that the plaintiff was represented by Frederick S. Lyon, Esq., and Taylor E. Brown, solicitors and counsel or representing counsel for plaintiff, as noted on the record, and by William A. Loftus, Esq., solicitor and counsel for defendants; that said John W. Alvord and R. L. Otwell were duly sworn by me before the commencement of their depositions, to tell the truth, the whole truth and nothing but the truth, in accordance with law; that the foregoing depositions and proceedings thereon were taken stenographically by me and by me thereafter reduced to typewriting in agreement with my stenographic notes thereof; that the foregoing depositions and record thereon are a true, full, correct and complete transcript of the depositions of said witnesses, John W. Alvord and R. L. Otwell, and of all proceedings had and taken in connection therewith, and which commenced at Room 1503 Marquette Building, 140

South Dearborn Street, Chicago, Illinois, at the time hereinbefore mentioned; that each of the exhibits mentioned in the foregoing depositions and the proceedings thereon, as offered in evidence, was [381] duly offered in evidence as appears in the record, and is attached hereto and included within this certificate; that the witnesses read over their foregoing depositions, respectively, and signed the same in my presence afterward; that I am not connected with or related in any manner, of interest or otherwise, to any part or either of the parties to this litigation, by either blood or marriage, nor in any event interested in the outcome or event thereof; and that it is my intention, upon this 5th day of March, 1920, to duly seal up the foregoing depositions and the said exhibits, that I may transmit the same under my seal and under this certificate to the Hon. Clerk of the United States District Court, San Francisco, California.

Given under my hand and notarial seal this 5th day of March, 1920.

[Seal]

HATTIE B. LEHMAN,

Notary Public.

[Endorsed]: Filed Apr. 19, 1920. W. B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [382]

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(Title of Court and Cause.)

**(Stipulation and Order as to Use of Certain  
Depositions.)**

IT IS HEREBY STIPULATED AND  
AGREED by and between the parties to the above-

entitled suit that, in order to save time and expense, the defendants above named may, upon the trial of this suit, use as evidence herein with the same force and effect as if taken *de bene esse* or given in open court in this suit any or all of the testimony heretofore given by Franklin H. Jackson and H. C. Robb in the case of this same plaintiff vs. American Well & Prospecting Co. et al., now pending in the United States District Court, for the Southern District of California, Southern Division, In Equity—No. E-42, together with the accompanying exhibits (or photostats or other true copies of said exhibits), forming part of said depositions of said Frank H. Jackson and H. C. Robb.

IT IS FURTHER STIPULATED AND AGREED that either a copy of said depositions and exhibits certified by the official reporter, or such copies as may be agreed upon by counsel as correct copies shall be deemed a full and sufficient certification as to the correctness thereof and that no further certification thereof shall be required to render the same admissible in this court under this stipulation.

FREDERICK S. LYON,  
WILLIAM K. WHITE,

Attorneys for Plaintiff.

CHAS. E. TOWNSEND,  
WM. A. LOFTUS,

Attorneys for Defendants.

So ordered.

FRANK H. RUDKIN,

Judge.

Dated May —, 1920.



[Endorsed]: Filed May 6, 1920. W. B. Maling,  
Clerk. By J. A. Schaertzer, Deputy Clerk. [383]

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In the United States District Court, for the South-  
ern District of California, Southern Division.

IN EQUITY—No. E-42.

LAYNE & BOWLER CORPORATION,  
Complainants,

vs.

AMERICAN WELL & PROSPECTING CO. et al.,  
Defendants.

**Deposition of Frank Jackson, for Defendants.**

Before Hon. LYNN HELM, Special Master, at  
Los Angeles, Beginning January 6, 1920.

APPEARANCES:

FREDERICK S. LYON, Solicitor for Complain-  
ants.

CHARLES C. MONTGOMERY and RAYMOND  
IVES BLAKESLEE, Solicitors for Defend-  
ants.

Direct Examination of FRANK JACKSON.

(By Mr. BLAKESLEE.)

Q. State your name, age, residence and occupa-  
tion, Mr. Jackson.

A. Franklyn H. Jackson, past sixty-three of age,  
residence, 2309 Brooklyn Avenue, Los Angeles;  
occupation, designer and manufacturer of cen-  
trifugal pumps.

Q. How long have you been engaged in that line

(Deposition of Frank Jackson.)

of manufacture and work, Mr. Jackson?

A. Since 1884 or '85.

Q. And prior to your location in Los Angeles where, if at any other place, were you engaged in that business?

A. In San Francisco, prior to the fire; and after the fire and earthquake over in West Berkeley for about two years.

Q. What was the name of the concern or interest with whom or through whom you did business in San Francisco?

A. Byron Jackson Machine Works, and, also, for a short time I think, before that—I can't say just how long—known as the Byron Jackson Agricultural Works.

Q. When did the name change to the Byron Jackson Machine [384] Works?

A. I am not quite sure, but I think somewhere about 1901.

Q. Do you know who the proprietors of the Byron Jackson Machine Works were?

A. At *that* Mr. Byron Jackson was the sole proprietor.

Q. Are you any relation to him?

A. I am his cousin.

Q. Do you know where Mr. Byron Jackson is today?

A. I understand he is residing in Berkeley.

Q. Is he engaged in any business?

A. I think he has retired from business.

Q. Now, what was the business of Byron Jackson Machine Works in the year 1901, specifying

(Deposition of Frank Jackson.)

what they turned out at the works?

A. Steam engines, boilers, centrifugal and turbine pumps, and some agricultural machinery.

Q. What were the pumps designed for? For what kind of service?

A. For irrigation, principally.

Q. What was the general nature of the irrigation pumps made at that time?

A. The first pumps *the* manufactured were what is commonly called horizontal centrifugal pumps, and that was followed very shortly after with what is known as vertical or pit pump, pumps that were placed in the bottom of a pit and operated with a shaft extending to the bottom of the pit.

Q. Were these made to some quite considerable extent in 1901 by Byron Jackson?

Mr. LYON.—Objected to as leading and suggestive.

Q. (By Mr. BLAKESLEE.) To what extent were they made at that time? [385]

Mr. LYON.—We object to that question. The dates are one of the material things in the case, and we object to counsel placing the date in the mouth of the witness.

Mr. BLAKESLEE.—He says it was in 1901.

The MASTER.—He says they were engaged in business in 1901. It might not be material.

Q. (By Mr. BLAKESLEE.) During the commencement of the business of the Byron Jackson Machine Works, what was the general nature of the irrigating pumps that were turned out there?

(Deposition of Frank Jackson.)

A. Do you refer to the time they began to make irrigating pumps?

Q. Yes, sir.

A. What was called the vertical pit pump and also the horizontal pump.

Q. When were the vertical pit pumps first turned out there?

A. About four years prior to 1901, we began to manufacture the pumps. We had been manufacturing about four years probably up to 1901.

Q. And some of those were vertical pit pumps?

A. Yes, sir; and some were horizontal pumps.

Q. What was the general nature of the vertical pit pumps? How were they made up, briefly stating the parts?

A. They very nearly resembled—I will show you the nature of them in a catalog.

Mr. LYON.—I think the witness had better describe it.

The MASTER.—What is that paper you have?

A. This is an old leaflet from an old catalog. It only goes to illustrate.

Q. When was that printed?

A. That was printed about that time; one of the very first [386] we got out.

Q. (By Mr. BLAKESLEE.) A catalog by the Byron Jackson Machine Works?

A. Yes, sir; this was gotten out probably in 1888 or somewhere along there.

Mr. BLAKESLEE.—We would like to introduce it to show the state of the art.

The MASTER.—He is talking about a time with-

(Deposition of Frank Jackson.)

in four or five years of 1901.

A. This type of vertical pump was manufactured prior to the time that I made an invention of a pump known as the Byron Jackson automatic balancing pump, that is about my idea of the dates of those things, because the other pumps that I will talk about later were made about that same time. The vertical pump was very similar to the horizontal pump, with a shaft extending to the top of the pit, which was sometimes twenty feet and sometimes fifty or seventy-five feet, and operated with a pulley with a quarter turn belt at the top of the well. The water was taken in in the Byron Jackson pumps through an elbow and what we called a suction yoke in the top of that pump.

Q. And what was it that did the lifting of the water?

A. It was done by what we call the impeller or runner which was a hollow revolving disc with curved arms, receiving water at the center and throwing it out by the operation of centrifugal and impact force.

Q. What confined the water and conducted it to the mouth of the well?

A. It was discharged into what was called the pump shell, a volute shell increasing in size, and then with an elbow turning up to the surface and conducted up with the pipe. That is what was called the pit pump. [387]

Q. At any time while you were with the Byron Jackson Machine Works in San Francisco, were any changes made to your knowledge, in the design-

(Deposition of Frank Jackson.)

ing and construction of these vertical pit pumps?

A. Yes, sir.

Q. When was any such change made?

A. In the pit pump, the change in the pit pump was made—we made what was called the automatic balancing pump. I can fix that pretty well in my mind. We were having trouble with balancing the rotating parts in the pit pump, and I made what proved to be an invention on May 3, 1899.

Q. (By the MASTER.) What was your connection with the Byron Jackson Company?

A. Foreman and superintendent.

Q. Did you actually do work, or did you just simply guide the men?

A. I guided the men and superintended the work, inspected the drawings when they came to the shop and approved the drawings before they were put in the shop or in the pattern-shop, in order to know that they could be made without difficulty and that they would not be made so as to do impossible things and also, for constructive purposes, to make it economical in construction.

Q. (By Mr. BLAKESLEE.) Did you inspect the work when it left the shop, to see that it was mechanically perfect? A. Yes, sir.

Q. How long did you continue that work with the Byron Jackson Machine Works?

A. Until 1908.

Q. What, briefly, was the nature of the change which you introduced in the vertical pit pump in 1898 or '99, I believe you said? [388]

A. I made what was known as the automatic bal-

(Deposition of Frank Jackson.)

ancing pump, a pump balanced by a variable pressure chamber, the pressure controlled by lateral motion of the shaft, which was the subject of a suit later on between the United Iron Works of Oakland and the Byron Jackson Iron Works of San Francisco, and then still later, between the Byron Jackson Iron Works and the Krogh Manufacturing Company of San Francisco.

Q. What, if any, connection is there between the Byron Jackson Iron Works and the Byron Jackson Machine Works?

A. It was reincorporated after the fire and changed from the name of Byron Jackson Machine Works to the Byron Jackson Iron Works, and at that time they increased their capital. They were incorporated for \$250,000.00, and they raised it to \$500,000.00.

Q. To your knowledge, were any other changes made in the construction of the vertical pit pumps turned out by the Byron Jackson Machine Works, between 1899 and 1908? A. Yes, sir.

Q. What was the nature of such change and when was it introduced?

A. Mr. Byron Jackson, who was always looking out for improvements in machinery and designs of all kinds, conceived the idea of making a pump, first conceived for domestic purposes, to put into a bored well, to be operated from the surface of the ground.

Q. What, if anything further to your knowledge, was done after his conception of such things?

A. We made a small model of the pump in the

(Deposition of Frank Jackson.)

early part of—well, the latter part of 1899 or early part of 1900.

Q. Right at this point, what, if anything, were the duties of Mr. Byron Jackson at that time? Did he take an active part in any way in the Byron Jackson Machine Works? [389]

A. Yes, sir.

Q. What was his office, or his position?

A. As proprietor. He acted also as consulting engineer and devised many of the appliances that we used in the shop.

Q. Do you know what his condition is to-day, physically and mentally?

Mr. LYON.—The question calls for a yes or no answer as to whether he knows.

A. I have not seen him for a number of years.

Q. (By Mr. BLAKESLEE.) What was the nature of this experimental pump of 1899 or 1900, following Mr. Byron Jackson's conception?

A. We made a pump in a bowl form or what is now known as the bowl form, having a runner taking water in at the bottom of the bowl, and a discharge pipe extending vertically, with a Tee at the top, out of which we discharged the water, and at that time we used what we called a top pulley frame as we had not designed anything in the way of a pump. We used one of our top pulley frames at the top of the shaft. The shaft extended from the runner—by the way: I made a sketch of that if I could show it to you.

Q. I suggest that you first verbally describe it and then refer to the sketch.



(Deposition of Frank Jackson.)

A. There was a bearing placed just above the runner, held in place by four arms which were cast into the shell or the bowl in order to sustain the rotating parts of that pump. Mr. Jackson secured a ball-bearing, consisting of a cup and cone similar to what was used on a bicycle. The shaft was in the neighborhood of seven-eighths of an inch in diameter. This little ball-bearing was set right on top of the bearing in the pump bowl. We set this up in the shop, having a tank under the lower [390] fall and discharged the water in a small box on the upper floor, and then allowed the water to return back into the tank on the lower floor. We first began to drive the pump at a comparatively slow speed—I should judge about perhaps a thousand revolutions—and failed to deliver any water due to the small diameter of the runner or impeller. Then we began to speed it up, and we changed pulleys and increased the speed till we ran it somewhere between 1600 and 1800 revolutions per minute, and then pumped water—quite a nice little stream, and, in order to find out as to whether it would work all right, we ran the pump about a day at high speed and it began to rattle and show signs of something going wrong with the bearings or something, and we took the pump down and took it apart and discovered that the ball bearings had pretty nearly worn out, as it was running in the water and the water had failed to lubricate the ball bearings at all.

Q. Now, through what device or in what manner

(Deposition of Frank Jackson.)

was the water conducted to the surface in the operation of this device?

Mr. LYON.—We object. We ask that the witness be asked to describe as fully as he can remember, the bowl of this device before counsel suggests to him that there is any other part in the device.

Mr. BLAKESLEE.—He said water was delivered, and I am asking how it was delivered by this pump.

The MASTER.—How is water delivered by this pump?

A. Through this discharge pipe extending from the top of the bowl. The shaft was operating inside of this discharge pipe, and then it was discharged through a Tee at the top of the pump, and the shaft projected on through a stuffing-box at the top and the pulley was above that that operated the pump.

Q. (By Mr. BLAKESLEE.) You have referred to a certain [391] sketch you made. How did you come to make that?

A. I made it from memory of the thing when I began to study on the thing, and I remembered that definitely because I had much to do with getting the thing together.

Q. When did you make that sketch, and where?

A. I made that sketch here in Los Angeles.

Q. When? A. A few days ago.

Q. Can you produce it now? A. Yes, sir.

Q. Please do so.

Mr. LYON.—We will object to the witness producing the sketch unless he has first completed his

(Deposition of Frank Jackson.)

testimony in regard to the mechanical construction of the device. The counsel has fully brought out all that he contends there was in this construction—

Mr. BLAKESLEE.—As far as I know, he has described it. Have you anything further to tell us as to the construction of this 1899 and 1900 device built along the conception of Mr. Byron Jackson? A. No further than—

Q. I mean as to the way it was constructed?

A. No.

Q. Do you know where that mechanism is now, or what became of it? If so, state.

A. It was destroyed in the fire, but some time before that when we discovered that the ball bearing was a failure by attempting to lubricate it with water, we decided that it was necessary to lubricate it in some way, and so Mr. Byron Jackson suggested that we put in a 1- $\frac{1}{4}$  inch pipe from the outside of the shell into the bearing and put an oil cup on the outside. [392]

Q. (By the MASTER.) Was that done?

A. No, sir; it was not done and for this reason: that I simply suggested to Mr. Jackson that it would be useless to put oil into that bearing open in the water, for the reason that the oil would simply float up through the bearing in the water and disappear, and then the suggestion came to Mr. Jackson or myself, I think perhaps at the same time, that we put a tube around that and put the oil into that tube and protect the bearing by that.

Q. (By Mr. BLAKESLEE.) Put the tube where?

(Deposition of Frank Jackson.)

A. Around the shaft, and extend it to the top of the bearing.

Q. What, if anything, was done in that connection?

A. As soon as we conceived that idea, Mr. Jackson says we will make a larger one. This pump is too small to get that tube in, and he ordered the drawings made for a large size of that same type of pump, and then, in order not to have the speed excessive, we made it, as I remember, with about three stages.

Q. Please explain what you mean by "three stages."

A. For instance, one stage, placed immediately above the other, the water being delivered from one stage to the other all the way up, throwing the water out from the center and using centrifugal force, and by means of the bowl returning it to the center.

Q. Now, as to the drawing you refer to that Mr. Byron Jackson had made, who made that drawing, if you know? A. Mr. Vandergrift.

Q. Where was that drawing made?

A. It was made in the drawing-room of the Byron Jackson Machine Works at that time.

Q. What would you place as the date of the making of that drawing? [393]

A. The drawing was made, I am reasonably certain, at the end of 1900, or perhaps, about the middle of 1900.

Q. Do you know where Mr. Vandergrift is today?

A. They said he went to Heaven. He is dead.

(Deposition of Frank Jackson.)

Q. What was Mr. Vandergrift's position there?

A. Draftsman and designer.

Q. How long was he there? Do you know the period of his employment?

A. I think Mr. Vandergrift was there about two or possibly three years, but I am not sure about that.

Q. Were there any other draftsmen there?

A. Yes, sir.

Q. Mention any by name.

A. Mr. Howard Thomas was there.

Q. Do you know where he is now?

A. I believe he is in Oakland. I have not heard from him or seen him for several years.

Q. What were his duties there?

A. At that time he was assistant draughtsman and tracer.

At the request of Mr. Blakeslee, a suspension of proceedings was had for a few minutes. During the time while proceedings were suspended, the witness is looking at a slip of paper.

Proceedings being again commenced, proceedings were resumed as follows:

Mr. LYON.—I object to the witness looking at sketches until his testimony is completed.

A. I explained to you the pump by two or three stages, one delivering the water to the other. I have a blue-print in my pocket that would illustrate that if you would care to see it.

The MASTER.—Go on with the description.

Q. (By Mr. BLAKESLEE.) To your knowledge, did you have [394] anything to do about the drawings which were connected with this pump or

(Deposition of Frank Jackson.)

well mechanism, with the tubing around the shaft?

A. Yes, sir.

Q. What did he have to do with it?

A. He made the tracings and blue-print of the drawing that was drawn by Mr. Vangergrift.

Q. Do you know where that tracings and blue-print are to-day?

A. In the possession of the Byron Jackson Iron Works in San Francisco.

Q. Did you see them at the time they were made?

A. Yes, sir.

Q. How close was that time to the time that Vandergrift made the original drawing?

A. Within a few days. Sometimes the tracings were back three or four days, but it was all within a week.

Q. Please go over each and every part that you recollect of the second pump mechanism you have discussed, namely, the one proceeding from Mr. Byron Jackson's conception in the latter part of 1900, as you fix it, and give us a summing up of its construction and its operation.

A. I got that date pretty clearly in my mind or that time pretty clearly in my mind within a month or so, for the reason that at that time I made my own patent device, or which was afterwards patented, and was operating it, and had it on the same tank with which we tested this pump. The pump was made, I think, with three stages. I would not be absolutely sure of that; possibly it was four stages. The water was taken in at the bottom and discharged by the runners at the peripheries, and

(Deposition of Frank Jackson.)

returned to the center of what was commonly called the pump bowl, and delivered successively to each one of the runners and [395] finally at the top shell it was discharged into what was called the outer casing, and carried to the surface and discharged through a cast-iron Tee, made especially for it—discharged horizontally very similar to the one that I described in the small model. Now, the tube that we had suggested on the little pump, extending from the upper bearing of the top shell of the pump, or top bowl, to the surface and through the discharge elbow at the top of the pump, then was made water-tight by a stuffing-box outside of this tube. The shaft of the pump extended up through this tube to the surface, or to the upper bowl similar to the little one that I described, and was operated by means of a pulley on the shaft, on what we call an A frame. About midway up in this discharge pipe we put a joint in the pipe and at that joint we put what we call the spider, which was a bearing having three extended arms extended within about an inch of the discharge pipe or casing, and tapped into the ends of those arms there was a screw. The object of that screw was to center the bearing up in the casing. The hubs on either end of this spider were threaded and the tube was threaded on the inside, and screwed on to this spider. The spider was cast iron, and where the cast projected, that was larger than the shaft and then the bearing proper was Babbitt metal. In order to insure the oil floodings the upper end of that bearing, we extended a small brass tube about a quarter of an inch in diameter,

(Deposition of Frank Jackson.)

or about three-eighths or a half an inch, so that it would be sure to flood the upper end of the bearing with oil before it ran through. Then, midway between this spider and the pump, we put in another bearing similar to this spider, but without any extending arms, and likewise above that spider, between there and the discharge. The upper end of the tube was open, the shaft extending through it, and we placed an oil cup on one side of the frame and ran a pipe over [396] to the top of this tube and dropped the oil down into the tube. At the lower end of the tube, just below what we called the upper bearing of the pump, we put a stuffing box. This stuffing-box was formed by threading the inside of what was called the stuffing-box chamber and what is known by mechanics as the gland was threaded externally and screwed into this stuffing box, tightening up the hemp packing or flax packing, I don't know what it was—whether it was hemp or flax—with a view of keeping the water from going into the lower end of the tube, and also to keep the oil from coming out. This pump we operated for quite a while. In fact, the pumps sat up there for quite a long time—I should say several months; I cannot say just exactly how long.

Q. Now, please state how the bearings were mounted—these three bearings you have mentioned, one at the spider, one above it and one below it? How were they mounted and arranged in place?

A. They were threaded—if I am allowed to use that model, I could make it clear. It would be very similar to having a babbitted sleeve so that



(Deposition of Frank Jackson.)

it fitted the shaft, and threaded externally on either end to within an inch of the center, and then the tube threaded on the inside and screwed on to these bearings. That was what we called the intermediate bearing.

Q. And where the spider was provided, what was the mounting of the bearings?

A. I have already described that, but it was similar to the sleeve, with this exception; that in that case we used three lugs extending out to within about an inch of the pipe, and screws were tapped into them so that they could be backed out and jammed against the casing and thus made it possible to center the shaft in the tube as we went along. [397]

Q. What I meant was, what was the relation of the intermediate bearing and the spider?

A. The purpose was to keep the bearings in alignment to support the shaft.

Q. Was that intermediate bearing part of the spider, or separate?

A. Separate from the spider entirely.

Q. Where was this well mechanism you last described, set up?

A. In the shop of the Byron Jackson Machine Works, in San Francisco.

Q. What arrangements were made for providing it with water to deliver, and where was the water delivered?

A. We had a tank about eight feet in diameter, set below the lower floor of the shop, and we extended the pipe up through the second floor and discharged

(Deposition of Frank Jackson.)

it into a weir-box there, and dropped it down through another pipe into this tank, so that we used the same water over and over again.

Q. Now, with reference to the floor level, where were the bowls of the pump located?

A. The bowls of the pump were lowered into the tank below the lower floor.

Q. How much below?

A. The tank was four feet deep and they were slightly above the bottom.

Q. You said that mechanism was operated there for several months. Why did you discontinue its operation, or what became of it?

A. They took the pump down in order to use it for exhibition purposes, to show how it was constructed, with a view of showing possible customers.  
[398]

Q. You mean to display its working parts?

A. Yes, sir; and furthermore, to examine as to whether it got loose, or if there was anything to change.

Q. What did you find?

A. Nothing at all. It was almost identical with the pumps that we made from there on.

Q. How long did it remain there at the Byron Jackson Machine Works?

A. That particular pump was destroyed in the fire. That is, it was badly melted, and parts of it bent up so that it was put into junk.

Q. That was in the big fire of April, 1906?

A. Yes, sir.

Q. And to your knowledge it was destroyed then?

(Deposition of Frank Jackson.)

A. I know it was destroyed.

Q. You have stated that it was used for demonstration purposes and it was taken down and disconnected. What was done in that respect, if you can tell us a little further?

A. When a salesman had a prospective customer, he would bring him into the shop and show him how it was operated and how it was constructed and so forth.

Q. To your knowledge, were any pumps or well mechanisms like that well mechanism just described, sold by means of such demonstrations?

Mr. LYON.—We object to that as leading and suggestive and calling for a conclusion of the witness, incompetent and not the best evidence, no foundation laid for the introduction of secondary evidence

The MASTER.—The objection will be sustained. You can ask him what was done with these pumps.

Q. (By Mr. BLAKESLEE.) Suppose I ask him this: after this [399] pump you have just described was taken down and used for demonstration purposes, were sales of well mechanisms made by the Byron Jackson Machine Works while you were there? A. Yes, sir.

Q. Were any of them similar to this mechanism which was used for demonstration purposes?

Mr. LYON.—We object to that on the same ground.

Q. (By Mr. BLAKESLEE.) There were pumps, you say, sold after that demonstration?

A. Yes, sir; numbers of them were sold prior to the fire.

(Deposition of Frank Jackson.)

Q. What were those pumps like?

A. Almost identical to the pump I have described. Some of them were made larger and some smaller, and some with several stages and some with only two.

Q. Can you specify now any differences between the pumps sold and the pump used for demonstration purposes?

A. So far as the general construction is concerned, including the tube and bearings, they were identical.

Q. Do you recollect now or have you any knowledge now as to the identity of any purchaser of any pump so sold?     A. Yes, sir.

Q. Please state.

A. They were sold—the first that we made,—I won't say the first but we made pumps that were sold to the Pabst Brewing Company of Milwaukee.

Q. When were those pumps made?

A. Those pumps were made in 1902, I think.

Q. How many of them were sold to the Pabst people?

A. Five, during my time.

Q. And the first was made in 1902?

A. To the best of my recollection. [400]

Q. Do you know that such pump was shipped from the Byron Jackson Machine Works?

A. Yes, sir; the pump was shipped with the bearings and headwork, from our works. The tubes and the shaft and the casing were purchased and put together in the east by our employee.

Q. Who was that?

Q. (By Mr. LYON.) Did you see that installation after the pumps left your shop at any time?

(Deposition of Frank Jackson.)

A. In Milwaukee?

Q. Yes, sir.

A. No, sir; not after it left San Francisco.

Mr. LYON.—We move to strike out the answer from the record and all the testimony of the witness in regard to the construction of any such alleged pump after the same left the shop of the Byron Jackson Machine Works, on the ground that it is hearsay, incompetent and not the best evidence.

Mr. MONTGOMERY.—He has testified that certain things were shipped from San Francisco. He knows that of his own knowledge. There is no hearsay about that.

The MASTER.—He moves to strike out after it was shipped.

Mr. BLAKESLEE.—We consent to that motion.

Mr. LYON.—I mean all that portion of any statement of anything that was purchased except what he knows himself.

Q. (By Mr. BLAKESLEE.) What was it that was missing in the shipment of this first pump or well mechanism, sent from San Francisco?

A. We did not ship the outer casing, the tube, or the shaft. We shipped the bearings, the couplings, the headworks and the pump complete, so far as they were concerned up to that point.

Q. You have spoken of some one who had something to do [401] with the installation; who was that? A. Mr. H. C. Robb.

Q. What was his employment?

A. Erecting engineer.

(Deposition of Frank Jackson.)

Q. Of what concern?

A. The Byron Jackson Iron Works or Byron Jackson Machine Works.

Q. To your knowledge, what did he do in this connection about installing this first patent pump?

Mr. LYON.—Of your own knowledge.

A. I know nothing further than I have stated, that we shipped the parts and that he was instructed to put them in.

Q. (By Mr. BLAKESLEE.) Do you know anything about his movements in that connection?

A. Nothing except that he left our works and went back there to do the work.

Q. Back to Milwaukee?

A. Yes, sir; and when he returned he came to us bringing the check for the payment of the first pump, and orders for three more.

Q. What was the date of his departure from San Francisco for Milwaukee in that connection?

A. In 1903, I think.

Q. Do you know what time of the year?

A. I cannot recall it now.

Q. When did he return with the check for that first installation and the order for three more pumps for the Pabst people?

A. I think that was in the latter part of 1903 or very early in 1904.

Q. Do you remember any other particular orders for [402] vertical pit pumps which were filled after the commencement of use of this pump for demonstration purposes—that is the pump built in

(Deposition of Frank Jackson.)

accordance with the Byron Jackson conception of 1903?

A. You mean the pit pumps or the bored well pumps?

Q. Vertical deep well pumps.

A. This type that we are discussing?

Q. This or any type.

A. We built pit pumps and are building them to this day, and also turbine pumps.

Q. Do you remember any orders for such turbine pumps.

A. Yes, sir; we built some that went to Waterloo, Iowa.

Q. When was that?     A. 1904.

Q. What was the nature of that mechanism?

A. Identical with that described.

Q. You mean the demonstration pump that you have spoken of?     A. Yes, sir.

Q. Do you know whether in connection with the preparation of the work for the filling of this first order for the Pabst people, when drawings were made?     A. Yes, sir.

Q. Who made such drawings?

A. Mr. Vandergrift.

Q. And did anybody else do anything in connection with such drafting work?

A. Mr. Howard Thomas.

Q. What did he do?

A. He traced them and made blue-prints.

Q. You are referring to the same Vandergrift and Thomas that you referred to before. [403]

A. Yes, sir.

(Deposition of Frank Jackson.)

Q. Where was that work done?

A. In San Francisco.

Q. At the same shop? A. Yes, sir.

Q. Do you know where such drawing or drawings is or are now?

A. They are in Byron Jackson Iron Works, in San Francisco.

Q. Are any of the drawings you have mentioned within your control at the present time?

A. No.

Q. When did you last see them?

A. I saw them a couple of months ago.

Q. Both the drawings of 1900 or the latter part of 1900 and this drawing in connection with the Pabst first order?

A. Yes, sir; and also the drawing—I am not quite sure about the drawings for the Pabsts, but I think I saw the ones for the Pabst and also the ones for the Waterloo order.

Q. Those drawings that you saw, tell us, please, what was the nature of those drawings, prints, tracings, original drafting or what?

A. The original drawing was made and sent to Mr. D. W. Meade and who I understood was the consulting engineer, and it was sent there with a bid offering to build that type of pump, and for his approval.

Q. That is, the drawing you mean for the first Pabst installation? A. Yes, sir.

Q. And what was it you saw a couple of months ago at San Francisco?

A. I saw them there. [404]



(Deposition of Frank Jackson.)

Q. Was it that drawing that you saw?

A. Yes; I saw that drawing and two or three others.

Q. How about the tracing that Mr. Howard Thomas made of the drawing of this first Pabst installation? When did you last see that and where?

A. The last time I saw that was about 1906, just about the time prior to the fire.

Q. What became of it, if you know?

A. All of the drawings in a few hours before the fire, we took all the drawers out of the cabinets, with all our tracings and loaded the drawings up on a truck and took them to the northern part of the city, and, fearing that they might be burned, they were buried in the sand there. But the fire did not come within about two blocks of where they were buried.

Q. After the danger was over what was done, if anything?

A. They were then taken over to Oakland. They opened at temporary office in Oakland *the* the drawings were taken there.

Q. Did this lot of drawings include also the first drawing you mentioned of 1900?

A. Yes, sir.

Q. When did you last see the tracings you said Mr. Howard Thomas made?

A. It was a little prior to 1906.

Q. Please state again what finally became of this first well mechanism with the ball-bearings?

A. That was destroyed in the fire.

Q. As well as the one that followed it?

(Deposition of Frank Jackson.)

A. Yes; we took that down when we set the other one up.

Q. When was this drawing made, the drawing for the first patent installation?

A. That is the drawing that we sent back there for approval. [405]

Q. For Mr. Mead's approval?

A. That was made very early in 1900, according to my recollection.

Q. Was it your custom or not to keep in touch with the drafting department where Vandergrift and Howard Thomas worked at the shops?

A. Yes, sir.

Q. Now, having described to us this first well mechanism of 1900, please produce the sketch you refer to as having been made by you last week or a few days ago. (The witness produces a sketch.)

Q. Will you kindly designate on this sketch the several leading parts you have referred to, including the shaft, ball-bearings and so forth, writing the names of the parts on using leading lines to the parts? (The witness marks the sketch as directed).

Mr. BLAKESLEE.—We offer this in evidence as Defendants' Exhibit 1, sketch by the witness Frank Jackson, and ask that the same be so marked.

Mr. LYON.—I would like to ask what it is supposed to be of.

Mr. BLAKESLEE.—As part of his testimony.

Mr. LYON.—He said he made a sketch of something, but I don't know that he said what it was.

The MASTER.—He was asked if he had prepared a sketch for the pump that they made in 1901.

(Deposition of Frank Jackson.)

Mr. BLAKESLEE.—This is another one. That was a blue-print. This is of the first one with the ball-bearings.

The MASTER.—This is the sketch he made?

Mr. BLAKESLEE.—Yes.

The MASTER.—And there he was requested to stop.

Mr. BLAKESLEE.—Yes; and I have asked him to mark the [406] parts on it.

Mr. LYON.—This is a sketch, then, of the one with the ball-bearings that was made?

A. Yes, sir; for the experimental pump; the very first thing we made.

Mr. BLAKESLEE.—I will ask another question. This exhibit 1, Mr. Jackson, is the sketch you referred to in your earlier testimony here, namely, the one which shows the ball-bearing pump mechanism made in 1900 and which was tried out for a while prior to the shaft in the tubing.

Mr. LYON.—We object to that as leading and suggestive. It absolutely states the dates and everything else. I want to know what the witness has to say about it and not what Mr. Blakeslee says.

Mr. BLAKESLEE.—We withdraw the question. Please tell us what this sketch shows, and connect it up with any part of your previous testimony which it illustrates or refers to.

A. This sketch Exhibit 1 refers to my earlier testimony in reference to the first experimental pump that we made for bored wells.

(By the MASTER.)

Q. And is that the one that was not a success?

(Deposition of Frank Jackson.)

A. The one with the ball-bearings. It was not a success from the fact that the ball-bearings went out with the water.

Q. (By Mr. BLAKESLEE.) Now, please tell us a little further where this well mechanism which was the first one, with the tubing enclosing the shaft and which was used after having been set up in 1900, as you say, and later taken down and used for demonstration purposes, as to the shaft itself? How was that shaft made?

A. The shaft was what was ordinarily called cold-rolled [407] or turned shaft and was coupled together by means of left-handed threads and screwed couplings, the couplings being about four inches long, and the shells threaded about two inches on each end.

Q. How many pieces were there to the shaft?

A. The shaft is usually made in twenty-foot lengths.

Mr. LYON.—I move that that answer be stricken out.

The MASTER.—That is not the question. How many pieces were in that shaft and how many couplings?

A. There were only two lengths of shafting used in the first pump, and two couplings.

Q. You have spoken of a blue-print in your testimony? A. Yes, sir.

Q. Will you produce that, please?

(The witness produces a blue-print.)

Q. What does that blue-print show?

A. It shows the construction that I described

(Deposition of Frank Jackson.)

similar to the Pabst pump. This one, however, shows the pump which was sent to Waterloo, Iowa. It is almost identical and perhaps identical with the Pabst pump.

Q. Can you point out any particulars in which the disclosure of this blue-print disagrees with the construction of the mechanism shipped to Waterloo?

Mr. LYON.—We object to that as leading and suggestive.

The MASTER.—He has described that Waterloo construction.

Mr. LYON.—But here is a blue-print. We don't know when it was made or by whom, placed before the witness. It is not proven to be one of the old blue-prints or anything else. You can prove any kind of a defense if you are permitted to do that.

The MASTER.—I sustained an objection to this because I thought he had already described his Waterloo machinery as being identical with the Pabst machinery. Now, then, the blue-print [408] has not been presented yet. You cannot describe the machinery again.

Q. (By Mr. BLAKESLEE.) I am asking where it disagreed with that and I will have him identify the print. He said it was substantially the same.

The MASTER.—Yes; that is the answer. That is enough.

Mr. BLAKESLEE.—I was simply carrying it a little further so as to differentiate, if there were any discrepancies.

Q. Where did you get this blue-print?

(Deposition of Frank Jackson.)

A. I got it here in Los Angeles.

Q. Where?

A. In the office of Mr. Johnson—The American Well and Prospecting Company's office.

Q. When?

A. The last time I was up here.

The MASTER.—Since Monday?

A. Yes, sir; all the same day.

The MASTER.—You were here Friday?

A. Yes, sir; that is when I got it.

Q. (By Mr. BLAKESLEE.) Now, does that compare with the construction of the well mechanism which was first shipped by the Byron Jackson Machine Works to the Pabst people at Milwaukee?

Mr. LYON.—We object to that as incompetent, not the best evidence, leading and suggestive, no foundation laid for the introduction of secondary evidence and a mere conclusion of the witness.

Mr. BLAKESLEE.—He has described that mechanism and I want to tie this up, and go through and have him identify every part.

The MASTER.—I don't think that you ought to ask these questions and ask him how that compared with him. I think he has described the other machinery. You can offer it in evidence [409] and let it be subject to comparison.

Q. (By Mr. BLAKESLEE.) Please state what this blue-print shows.

Mr. LYON.—We object to that on the ground that it is incompetent, no foundation laid, the witness not having qualified to answer the question,

(Deposition of Frank Jackson.)

and as irrelevant and immaterial, unless it is shown whether this is one of the original blue-prints made at the time, or a mere reproduction from memory by someone who has produced it and handed it to the witness.

Mr. BLAKESLEE.—He can state what it shows.

The MASTER.—He simply says he got it here at this pump company's office.

Q. (By Mr. BLAKESLEE.) I am asking from his knowledge what it shows.

The MASTER.—He can state whether he ever saw that before.

Q. Have you ever seen any drawings like this before or any device like this before?

A. Yes, sir.

Q. What device.

Mr. LYON.—Objected to as incompetent, not the best evidence, not the proper method of proof, calling for a conclusion of the witness.

Mr. BLAKESLEE.—He stated he had no original drawings in his control.

The MASTER.—He said he knew where they were.

Mr. BLAKESLEE.—But that they were not under his control. In due time he will produce them, but I want this witness' testimony to be illustrated.

Mr. LYON.—If there is an original of that print, it is easy enough to prove it right.

Mr. MONTGOMERY.—It is not the original.

[410]

Mr. LYON.—That is one of the things we will

(Deposition of Frank Jackson.)

show in this case. It is attached to this man's affidavit in this case, and that is why we want strict proof. I want to know where it is that his memory has been refreshed by this outside print.

Mr. BLAKESLEE.—You can ask about it on cross-examination. I want it used as part of a deposition to illustrate his testimony. I can ask him to describe this or to refer to this and point out the parts, but I want something concrete before your Honor as well as his verbal testimony.

The MASTER.—Don't you think you have to lay a better foundation as to why he has not the original before him?

Mr. BLAKESLEE.—He said they were not in his control. I was careful to ask him that.

The MASTER.—Don't you think you have got to show where the others are?

Q. (By Mr. BLAKESLEE.) Do you know where the drawings and tracings are as you have referred to as having been made by Vandergrift and Thomas?

A. In the possession of the Byron Jackson Iron Works.

Q. Are they available to you at the present time?

A. They would if I asked for them.

Q. But you have to go there to get them?

A. Yes, sir; or write for them.

Q. (By the MASTER.) Where did this piece of paper come from? When was it made, do you know?

A. This is the reprint of the tracing sent from the east to our office in Los Angeles.



(Deposition of Frank Jackson.)

Q. Whereabouts in the east? Do you know of your own knowledge where it came from?

A. Simply this, I know that it came in the mail to our office. [411]

By Mr. BLAKESLEE.—From where?

A. From the east. It came from Daniel Meade. It was in his envelope or in an envelope having his name on it, and this is a reprint of that.

Q. (By the MASTER.) You never saw it before? A. No.

Mr. BLAKESLEE.—But he recognizes this.

A. Yes, as a copy of the original.

Mr. BLAKESLEE.—We will waive this inquiry with the understanding we reserve the right to recall this witness to identify those drawings. That is the reason why I asked yesterday that this witness' testimony be deferred until we can obtain those drawings.

The MASTER.—You don't think yourself you could introduce a copy like this without any better foundation?

Mr. BLAKESLEE.—I don't propose to use it in the place and stead of the original at all.

The MASTER.—Then the objection is that you are leading the witness.

Mr. BLAKESLEE.—He has given his testimony in full and I want this to illustrate his testimony. A witness can always state that a certain paper shows the substance of his recollection, after he has stated his recollection.

The MASTER.—From a paper that he knew where it came from.

(Deposition of Frank Jackson.)

Mr. BLAKESLEE.—He testified that it came from the man to whom the original drawing went.

The MASTER.—But how it came there he does not know.

Mr. BLAKESLEE.—He testified that it was sent in 1902 from San Francisco.

The MASTER.—Not that paper.

Mr. BLAKESLEE.—The drawing was sent by Byron Jackson [412] Machine Works to Meade.

The MASTER.—There isn't any testimony to that effect.

Mr. LYON.—He has not said that it was sent to those people or anything of the kind.

Mr. MONTGOMERY.—He said that the Pabst pump drawings were sent to Meade. And now, this is not a copy of the Pabst pump drawing, so of course, your Honor is right, and we cannot introduce it; but all we want now is that when we get those drawings we can recall this witness and have him identify them.

The MASTER.—But you are jumping one step further here, and the objection to that will have to be sustained.

Mr. BLAKESLEE.—Let the record show—do you know whether or not this blue-print is the correct showing or copy or print of the drawing which was sent to Meade in 1902, for the first Pabst installation? A. No; this is not.

Q. You know that it is not? A. Yes.

Mr. BLAKESLEE.—Then we will not press that matter but reserve our right to recall him to identify the original drawing.

(Deposition of Frank Jackson.)

Cross-examination.

(By Mr. LYON.)

Q. Is this blue-print that you have just been referring to a duplicate of the blue-print attached to the affidavit in this case?

Mr. BLAKESLEE.—We object to that because it has been ruled out.

The MASTER.—He is not asking about the contents of it.

A. Yes, sir.

Q. (By Mr. LYON.) Where was the Byron Jackson Machine Works Office in 1902 located?

A. San Francisco. [413]

Q. What part of San Francisco?

A. Sixth and Bluxome Street.

Q. And you are very sure that this first pump with the tube or casing around the line shaft or drive shaft was assembled in the latter part of 1899 or fore part of 1900? A. No; in 1900.

Q. What time of the year 1900 was it first assembled?

A. I should imagine that it was, as near as I could guess, somewhere about the middle of the year.

Q. What was your position with the company at that time?

A. Foreman, and afterwards superintendent.

Q. Who else, do you remember, was connected with the company's shop at that time?

A. Mr. Byron Jackson—you mean employees or what?

Q. Yes, or the principal man of the shop.

(Deposition of Frank Jackson.)

A. Mr. Vandergrift was draughtsman; Mr. Howard Thomas was assistant draughtsman and Mr. H. C. Robb was working in the shop, and I can name several of the machinists who were working in the shop. Mr. James Bailey was working in the shop.

Q. What time of the year was it that that experimental or model device was first erected?

A. That was in the early part of 1901 or else right about the end of 1899.

Q. You mean 1900? A. Yes, sir.

Q. Which was it, 1901, 1900 or 1899?

A. 1899 or first part of 1900.

Q. When you say the fore part, you mean January or February?

A. I suppose January, February or possibly March. We were very busy and those things moved slowly and sometimes too [414] quite a little time.

Q. Is there any means whatever by which you can fix that date?

A. Well, I can fix it reasonably certain by my own pump which I was testing at that time, a pump that I patented.

Q. You mean solely by association with the fact that you had a balanced pump of yours and were working with that at the time? A. Yes, sir.

Q. Now, which of those devices were gotten out first, your balanced pump or this first experimental pump with the enclosed line shaft?

A. They were practically about the same time.

Q. You say practically about the same time.

(Deposition of Frank Jackson.)

Were they absolutely coincident as to time?

A. Oh, there might have been two or three weeks or possibly a month between them. I cannot recall exactly, but it was about that time.

Q. When was it that you first commenced work on your balanced pump?

A. I commenced that in 1899.

Q. What time in 1899?

A. Somewhere along about September or somewhere along there.

Q. What did you first do with it in September, 1899?

A. I first began to—well, I made the sketch which I have in my possession, witnessed by Mr. Vandergrift and Byron Jackson.

Q. At that time was work started on the enclosed line shaft model or experimental device?

A. A little later. [415]

Q. How much later?

A. Well, about in the early part of 1900. I followed right up after that, because we saw that we had something.

Q. When was it that you first sent one of those devices to the Pabst Company at Milwaukee?

A. That was, I think, 1903—in the early part of 1903.

Q. You say “the early part of 1903.” Was it January, February, March, April or May?

A. I cannot recall that now.

Q. You are sure it was in 1903? A. Yes, sir.

Q. Positive it was not in the year 1902?

A. No; I don't think they were shipped in 1902.

(Deposition of Frank Jackson.)

Q. Are you sure it was either 1902 or '03?

Mr. BLAKESLEE.—I object to that. The witness has answered twice that he is sure and positive.

A. Yes.

Q. (By Mr. LYON.) Sure that the drawings made for Meade were not first made in 1904?

A. No, sir; it was made in 1902.

Q. What time in 1902 was it that Mr. H. C. Robb went to Milwaukee on this Pabst matter?

A. I think about the middle of the year; I am not sure.

Q. When you say "middle of the year" do you mean June or July, 1903?

A. Somewhere along there; I am not absolutely certain.

Q. What is your best recollection?

A. I would say about the middle of the year, June or July, somewhere.

Q. Was it in June?

A. I cannot say. [416]

Q. Or was it in July?

A. I cannot say.

Q. Was it in August, 1903?

A. I couldn't say.

Q. Would you say that it went there at any time in 1903? A. Yes, sir.

Q. You are certain it was not 1904?

A. I think so; I am not positive about that. That is not quite clear in my mind.

Q. I want you to think, now, and tell us whether it was 1902, '03, or '04 when Mr. H. C. Robb went

(Deposition of Frank Jackson.)

to Milwaukee? A. It was in 1903.

Q. You are positive of that, are you?

A. Yes, sir.

Q. And you cannot tell us whether that was in May, June, July or August, 1903, when Mr. Robb went to Milwaukee?

A. No; I cannot recall that now.

Q. Can you say it was in one of those four months?

A. Well, I would say it was probably in July or August or September; I am not positive about those dates.

Q. You stated, I believe, that about two months ago you saw some original drawings here in Los Angeles. In whose possession were they then?

A. In the possession of Mr. Keating.

Q. He is the president of the company—the Byron Jackson Company?

A. President of the Byron Jackson Iron Works.

Q. Was he accompanied at that time by his counsel, John H. Miller? A. No, sir.

Q. Where was it you were shown those drawings?

A. In the Hotel Hayward. [417]

Q. Here in Los Angeles? A. Yes, sir.

Q. What was the occasion of your seeing them at that time?

A. He was talking about the pumps and informed me that action had been taken, and I understood it was by suit or otherwise, but I cannot understand about that, and he talked to me about them.

Q. And you talked over with him the dates and

(Deposition of Frank Jackson.)

what was done in the early days in regard to these devices?

A. Not very much about the dates. I just simply looked at the drawings and said, "I think I recognize those drawings all right."

Q. How many drawings did he have?

A. He had two, and I don't know but what he had three.

Q. Tracings or blue-prints?

A. Blue-prints.

Q. What size prints?

A. Oh, I should say about two feet by thirty inches or something like that.

Q. Were either of them substantially duplicates of the tracing which you have in pocket and which you have produced here today?

A. No, sir; none of them.

Q. Not like them?

A. They were like it, but not this exact drawing. They were on this exact principle and showed the construction just like what I have here.

Q. But a different print?

A. Yes, sir; different prints, but the same construction, identically.

Q. Did it have the same dates on that that one has? [418] A. No, sir.

Q. Do you remember the dates upon any one of those three blue-prints or drawings which Mr. Keating showed you at that time?

A. Yes, sir; there was one of them that he showed me, the drawing that was submitted to D. W. Meade, was dated March, 1902.



(Deposition of Frank Jackson.)

Q. What did the drawing show?

A. That drawing showed the pump and a part of the discharge pipe, the inner tube and the shaft.

Q. Is that all?

A. That is all it showed. It did not show the entire construction all the way up, but that part of it.

(The witness' answer to the next to the last question is read.)

Q. You mean by the inner tube and the shaft as shown by that drawing that you have just referred to?

A. It was for the protection of the shaft and the oil similar to that which I have been describing.

Q. That drawing is dated 1902?      A. Yes, sir.

Q. What date?

A. March, I am pretty sure.

Q. Made by whom?

A. Made by Mr. Vandergrift.

Q. How large a drawing was it?

A. A drawing about two feet, I should judge, by thirty inches, or something like that. I don't remember the exact size of it.

Q. What was the other drawing or blue-print?

A. About the same size.

Q. What did it contain?

A. I didn't pay so much attention to that, but that drawing was 1902, I am pretty sure. [419]

Q. What was it a drawing of?

A. A drawing of the entire construction, showing the general construction of the pump, made for the purpose of showing the erecting engineer how to

(Deposition of Frank Jackson.)

make the lengths of his tube and discharge pipes.

Q. Describe that in detail as your memory allows you, as far as you can go.

A. My former description will answer that description as near as I could answer it.

Mr. LYON.—We move to strike out the answer from the record and exclude it from consideration as not responsive.

A. I will answer anything you ask.

The MASTER.—The question is, to describe that particular drawing. Don't describe any other but that particular one.

A. That particular one for the Pabst people?

The MASTER.—I don't know whether it is the Pabst people, or not.

Q. (By Mr. LYON.) I am asking you about the second one which you have referred to. You said one that was made in 1902, and the one that was the second one, the one that you say that you did not particularly notice the date on.

Mr. BLAKESLEE.—You mean the second seen at the Hayward Hotel?

Mr. LYON.—Yes.

A. That consisted of a pump of six stages. I did not count the stages carefully. And it showed the exterior or discharge pipe, the shaft extending from the pump to the driving mechanism at the top. It also showed the tube surrounding the shaft and it showed the intermediate bearings of which there were two to each section, the sections being made in about twenty foot lengths, with a spider at each of the twenty-foot lengths. This [420]

(Deposition of Frank Jackson.)

intermediate bearing which was formed as a sleeve with a thread externally, and a tube threaded internally screwed into it, the bearing babbitted and the shaft extending through that clear to the surface. At each end of the shaft it was threaded with a left-hand thread, and then the tube extended clear through, with the discharge elbow at the top of the pump. The tube was surrounded at the top with a stuffing-box and was open at the top and extending through the tube. The shaft extended up to the top frame which carried the pulley and also carried ball-bearings to support the rotating parts, as they didn't have any ball-bearing in the columns.

Q. Are you describing that drawing or are you remembering something else?

A. I am remembering that.

Q. Did that or did it *now* show ball-bearings?

A. That drawing does not show ball-bearings.

Q. Please proceed and answer the question, what that particular drawing showed.

A. Then the tube was open and showed the shaft extending through the tube up through the pulley and up through the upper bearings. There was the discharge all at the top and the bottom of the pump did not show any such part, but it ended right there, so far as the drawing was concerned. These bearings were made out of cast iron, cast larger than the shaft, and the bearings, each one of them, babbitted.

Q. Were they so indicated on that drawing?

A. I think you will find that it is.

(Deposition of Frank Jackson.)

Q. I am asking from your memory whether it was or not? A. Yes, sir; it was.

Q. Proceed.

A. We extended a small brass tube— [421]

Q. I did not ask you what you did, but ask you what this drawing showed. Confine your answer entirely to what this drawing showed.

A. That drawing shows that.

Q. Is that all you recollect about that particular drawing? A. Yes, sir.

Q. Was there more than one figure of that drawing, or view? A. One view only.

Q. Just one assembled view?

A. Yes, sir; one assembled view is all I recall.

Q. The pump proper shown in section or in full?

A. Shown in an outline drawing and not in sections.

Q. What portions of the drawings were shown in sections?

A. From the top of the pump to the surface.

Q. Only one assembled view to that drawing?

A. That is all I recollect.

Q. What was the third drawing that you say you saw at the Hayward Hotel in the possession of Mr. Keating about two months ago?

A. If my recollection is right, it was a pump drawing very similar to the one I have just described, as far as general construction is concerned.

Q. (By Mr. BLAKESLEE.) Like the first one?

The MASTER.—Like the one he has just described.

(Deposition of Frank Jackson.)

Q. By Mr. BLAKESLEE.) Like the second?

A. Yes, sir; I didn't pay any particular attention to that drawing. I looked only at the first two particularly.

Q. (By Mr. LYON.) Did you notice what this third drawing purported to be? [422]

A. No, sir; I only glanced at it, and saw that it was a pump similar—

Q. Was it a drawing that you had ever seen before? A. Yes, sir.

Q. When had you seen it before?

A. I saw it in the drawing-room of—

Q. When?

A. I had seen it somewhere between 1903 and 1904.

Q. When did you first see it?

A. Somewhere about that time.

Q. Was it 1903 or '04?

A. I couldn't tell you.

Q. Was it also a drawing of this alleged Pabst installation?

A. No, sir; that was a separate pump. I think it was a smaller diameter pump. That is, a smaller size pump.

Q. Did that drawing consist of more than one view or was it just one assembled view of the pump?

A. I think that was just an assembled view of the pump.

Q. Now, referring to the first one of the 1903 drawings, was there more than one figure of that drawing? A. Just one.

(Deposition of Frank Jackson.)

Q. No other views than one assembled view?

A. To the best of my recollection there was one assembled view.

Q. And that was made, according to your recollection, by Vandergrift? A. Yes, sir.

Q. And in the year 1902? A. Yes, sir. [423]

Q. As a matter of fact, did you have, and when I say "you" I mean the Byron Jackson Company, ship to the Pabst Brewing Company any enclosed line shaft pumps at all, or did you simply ship the pumps and leave the question of the line shaft to be taken care of in the east?

Mr. BLAKESLEE.—Objected to as argumentative.

The MASTER.—It is cross-examination.

Mr. BLAKESLEE.—And, furthermore, as not complete. "Taken care of" might mean a lot of things. What the question means I don't know.

The MASTER.—The witness understands the question. (The question is read.)

The MASTER.—Answer the question.

A. Yes, sir; we did not ship the two, the shafting or the outside casing, known as the discharge pipe. We shipped the pump complete with the bearings and the spiders, the couplings and the pump works of the pump.

Q. (By Mr. LYON.) Let me see if we understand you correctly, Mr. Jackson. You say that in connection with the first Pabst order drawings were made by Vandergrift and Thomas? A. Yes, sir.

Q. Those first drawings, according to your recollection, were made in 1902? A. Yes, sir.

(Deposition of Frank Jackson.)

Q. Now, you say also, that drawings were made and sent to D. W. Meade, the consulting engineer for his approval?

A. Those were the drawings I referred to.

Q. Those were the same drawings? A. Yes, sir.

Q. Were those drawings as so sent to him then, drawings of the structure as it was made to be sent to the Pabst Brewing [424] Company on the first order, or were they changed?

A. Very little, if any change.

Q. Was there any change in them?

A. The only change was the bend of the shaft tube. It was made a little large in diameter in the first drawing, and that was made smaller in the second drawing, showing the details.

Q. That is the only change?

A. That is the only change that I recollect.

Q. Were there any drawings made in 1904 for this Pabst installation? A. No; I think not.

Q. None whatever? A. I think not.

Q. Were there any made in 1904 for the enclosed line shaft pumps as you were making them or going to make them in the Byron Jackson Company?

A. I think not.

Q. According to your recollection, no such drawings were made in 1904? A. I don't recall any.

Q. If there were any then they have passed entirely from your memory? Is that it?

A. Yes, sir.

Q. (By the MASTER.) Where is Mr. Meade?

A. In the east, in Madison, Wisconsin. I under-

(Deposition of Frank Jackson.)

stand he is a professor in the University.

Q. Does he still live in that country?

A. Yes, sir.

Q. Did Byron Jackson have any books and accounts? A. We lost everything but the ledger.

Q. In the fire? [425] A. Yes, sir.

Q. None of them were saved?

A. No; the only record they have of sales would be the sales booked in Los Angeles. The sales books up there with the exception of the ledger were lost in the fire.

Q. And you took some of these plans and buried them at the time of the fire? A. Yes, sir.

Q. And they were not destroyed?

A. Those were not destroyed.

Q. Were the books also preserved?

A. No; just the ledger. The head bookkeeper went in the morning of the fire and got the safe open and took the ledger—that was all they tried to take, because the building commenced to totter and were later wrecked.

Q. When he got that ledger what became of it?

A. He took it in his possession and took it home till we got an office.

Q. Where is it now?

A. In the possession of the Byron Jackson Iron Works.

Q. The original book?

A. Yes, sir; the original ledger.

Mr. BLAKESLEE.—We will doubtless produce it in San Francisco.

Q. Do you remember the date upon which you



(Deposition of Frank Jackson.)

made application for the patent on this balanced pump, as you call it, or as it is entitled in the patent "End Thrust Counter Balance for Centrifugal Pumps and Shafting" was made?

Mr. MONTGOMERY.—That is not proper cross-examination and immaterial.

Mr. BLAKESLEE.—And not calling for the best evidence. [426]

The MASTER.—It is testing the memory of the witness and he asks at the time the first drawings were made was it at the same time that they made the drawings on the other pump.

Mr. MONTGOMERY.—He didn't say anything about the patent application.

Mr. LYON.—I will connect the matter in a moment.

The MASTER.—The objection is overruled.

Mr. BLAKESLEE.—Exception.

(The question is read.)

A. My first sketch on which I based the patent was May three, and witnessed May 3, 1899, and in September, I made the application.

Mr. LYON.—We move to strike the answer from the record and exclude it from consideration on the ground that it is not responsive to the question, and we ask that the records show that before answering this question the witness drew from his pocket a piece of yellow paper and evidently had used the same before giving his answer.

The MASTER.—The first part of it will be granted. It is not responsive. Read the question again.

(Deposition of Frank Jackson.)

(The question is read by the reporter.)

The MASTER.—When was the application itself made?

A. Byron Jackson and his attorneys made the application. I could not tell you within a month of when they made the application or two months, but the patent, I think you will find if you get hold of the record, shows September.

Q. You signed the application, didn't you?

A. No, sir; it was signed by the patent attorneys as is usual in such cases.

Q. You didn't sign the petition for the patent in that matter? [427]

A. Oh, yes; I think I signed the petition.

Q. And the power of attorney and specifications and the oath? A. Yes, sir.

Q. Do you remember when it was that that took place?

A. Oh, August or September. I could not tell you the date exactly.

Q. How long was it after you conceived that invention before you made the application for the patent?

Mr. BLAKESLEE.—We object to that as not proper cross-examination. It is inquiring into a matter which is not proper to inquire into.

The MASTER.—He has taken that as the time when he knew that this other was coming.

Mr. BLAKESLEE.— He says he was working on it. It is nothing that can be disproved. It cannot be met, because it is a mental operation and not disclosure of somebody else.

The MASTER.—The witness has said that this

(Deposition of Frank Jackson.)

particular invention in question was conceived about the same time. Therefore, it being used as a comparison by counsel in cross-examination, he is right to go into it.

Mr. BLAKESLEE.—My recollection is that he testified about the time he was working at his invention, that Byron Jackson conceived the idea of this invention of his.

The MASTER.—Yes, but I do think he used that comparison and counsel had the right to inquire into all the times and circumstances of the act.

Mr. BLAKESLEE.—My objection is as to the act of conception. And, furthermore, it might be for the purpose of adducing evidence usable in some other matter. There might be some controversy in which that matter would be germane. [428]

The MASTER.—If he had not brought it in in the first place in trying to fix the date with and make a comparison, it would be a different thing.

Mr. BLAKESLEE.—My objection goes as to the conception factor.

The MASTER.—Yes, but I think it is all parts of the same thing.

Mr. BLAKESLEE.—I wish to note an exception to the ruling.

A. The application was made in September.

Q. (By Mr. LYON.) What year?

A. 1899.

Q. (By the MASTER.) And how long before that did you conceive the idea before the application was made? A. In May.

Q. (By Mr. LYON.) 1899? A. May, 1899.

(Deposition of Frank Jackson.)

Q. And before making the application for that patent, had you built a pump embodying that invention, Mr. Jackson?

A. This invention, before making the application? (The question is read by the reporter.)

A. Yes, sir.

Q. (By Mr. LYON.) Did you not in an affidavit made by you, entitled, "In the United States District Court for the Northern district of California, Second Division, in a suit wherein Byron Jackson Iron Works is plaintiff, and the Pelton Water Works was defendant, in Equity, make a certain affidavit on the 22d day of June, 1918, before L. Belle Weaver, Notary Public in and for the County of Los Angeles, State of California," referring to this end thrust counter balanced for centrifugal pumps and shaft, set forth in Patent No. 666,869, granted to you on January 29, 1901, for the invention you have been referring, state, "I first [429] conceived the invention described and set forth and claimed in letters patent No. 666,869, less than two or three weeks before the date of placing the invention in the hands of the attorneys who filed the patent application. I conceived this invention, explained to Byron Jackson and took a regular Byron Jackson pump which was in stock, and attached my new balance and tested it out in the Byron Jackson shop. This pump was a complete success, and we immediately applied for the patent success, and we immediately applied for the patent covering the balance. As I remember it, this was either a five or six-inch pump. After that date we commenced to manufacture the pump with my new

(Deposition of Frank Jackson.)

balance," and I show you a copy of that affidavit.

A. I don't recall this affidavit and this is not my signature.

Mr. LYON.—We move to strike the answer from the record and exclude it from consideration on the ground that it is not responsive. The question is not, "Is that the affidavit?" The question is, "Did you make the statement contained in the top paragraph which I have quoted and which the reporter will now again read to you?"

(The reporter reads the question.)  
question.)

The MASTER.—The question is did you make that statement in the affidavit referred to, and he says, "I don't recollect the affidavit."

A. I don't recall this affidavit.

(The question is read by the reporter.)

The MASTER.—The question is did you make that affidavit or not?

A. I made that affidavit. But, on the other hand, the application passed out of my hands and was in the attorney's hands for some time.

Q. (By Mr. LYON.) You had forgotten all about this [430] affidavit until I showed it to you, had you not, Mr. Jackson? A. Sir?

(Question is read.)

A. Yes, sir.

Q. And you forgotten the statement you made in that affidavit that it was less than two or three weeks prior to placing the application in the hands of the attorneys, that you had conceived the invention?

A. That is, placing it in the hands of the attorneys;

(Deposition of Frank Jackson.)

yes, sir. But it was some time after that before I went to Dewey Strong's office.

Q. When did you place it in the hands of the attorneys?

A. I didn't place it in the hands of the attorneys. Mr. Byron Jackson did that.

Q. When did he place it in the hands of the attorneys?

A. I couldn't tell you exactly. I turned it over to Mr. Byron Jackson and I think that affidavit would be pretty true and I think you will find Mr. Byron Jackson will testify the same thing.

Q. What do you mean in this affidavit by "that it was less than two or three weeks before the date of placing the invention in the hands of the attorneys who filed the patent application, that you first conceived that invention?"

Mr. BLAKESLEE.—We object to that. The statement speaks for itself.

The MASTER.—If you want to contradict the witness, show him the original affidavit.

Mr. LYON.—He has already stated that he remembers making the statement, now. He don't deny making the statement, but he attempts now to state some difference between the statement of that affidavit and a statement that the invention was only [431] conceived a very short time before the application was filed, and I want any explanation he can give of that.

Mr. BLAKESLEE.—That is not his testimony.

Q. (Mr. LYON.) Is it your recollection that you went to the attorney's office or that the placing of the

(Deposition of Frank Jackson.)

invention in the hands of the attorneys and filing the patent application was many months before the application was actually filed in the Patent Office?

A. No; I think not.

Q. Now, then, what kind of pumps at that time, to wit, the time of the filing of this application that you have been referring to, was the Byron Jackson Company making? Tell us in full each of them.

A. They were making what is known as the vertical pit pump, a pump that was set in the bottom of a pit and operated by a shaft extending to the top of the pit and run with a pulley with a quarter turn belt. The water was taken in through a suction pipe to the side of the pump and carried over the top of the pump and taken down into the top of the runner and discharged out of a volute shell by an elbow which turned the direction of the water up through a discharge pipe to the surface of the ground, or, generally, to the surface of the ground.

Q. Could such a pump as that be placed in a small bored well?

Mr. MONTGOMERY.—Objected to as not proper cross-examination.

The MASTER.—Why not? From his memory he can show that his memory is defective, and anything that describes the pump or its use will show that because it may be shown that those particular pumps were not used for three or four years. [432]

A. It depends upon how small a well you refer to. Some wells two feet in diameter are called small, and some five feet in diameter are called small.

(Deposition of Frank Jackson.)

Q. (By Mr. LYON.) Could such a pump be used in the two-foot well?

A. Yes, sir.

Q. In a ten-inch well? A. No, sir.

Q. A sixteen-inch diameter well? A. No, sir.

Q. What other kinds of pumps at that time was Byron Jackson making?

Q. (By the MASTER.) Do you call that by any specific name? I mean the patent device?

A. Yes, sir; it was a patent device. Mr. Byron Jackson held a patent on a pump that was issued before. It was called the Byron Jackson pump. They were also constructing horizontal pumps, the shafts being horizontal and operating with belts and some times connected with electric motors.

Mr. BLAKESLEE.—This question before, was vertical pit pumps.

Mr. LYON.—All pumps.

Mr. BLAKESLEE.—I mean the one for the sixteen-inch well.

The MASTER.—It was confined to all pumps.

Q. (By Mr. LYON.) This horizontal pump was that adapted for use in a relatively small, say sixteen-inch bored well? A. No, sir.

Q. Now, what other types of pumps were they making at that time?

A. They were making what was known as slime pumps, which were used in connection with mining operations.

Q. Any other centrifugal pumps or runners?  
[433]



(Deposition of Frank Jackson.)

A. Those were centrifugal pumps and dredging pumps.

Q. Those were not capable of use in the small bored well? A. No, sir.

Q. Was any other pump that could have been used in the small bored well?

A. Outside of the pumps that I have been describing that were made at that time.

Q. No others? A. No, sir.

Q. When did you next make another type of centrifugal pump that could be used in a small well—in a small diameter bored well?

Mr. BLAKESLEE.—Objected to as indefinite; Next after when?

Q. (By Mr. LYON.) After the ones we have been talking about.

Mr. BLAKESLEE.—After the ones that he said would not have been used in small bored wells?

The MASTER.—After the pumps they were making at this particular time.

Mr. LYON.—In 1899, and the time of this invention that he has referred to.

Mr. BLAKESLEE.—You mean his centrifugal balanced invention?

A. What pump are you referring to now?

The MASTER.—Your pump that you invented yourself.

A. Did I make any further changes in it?

The MASTER.—No; what other pumps was Byron Jackson handling at that time?

A. He was manufacturing in 1901 and 1902 this bored well pump, that we have been talking about.

(Deposition of Frank Jackson.)

The MASTER.—What else?

A. Then we made some plunger pumps and also made some of [434] what was called rotary pumps. They are differentiated from the centrifugal pumps, because they are a positive acting pump, by gears running together.

Q. (By Mr. LYON.) Let me ask you this question: Definitely when was it that you made at the Byron Jackson Works, the first what you call bore well pump—the first pump that went to the Pabst Brewing Company? A. 1903.

Q. How did the pump part of that pump differ from the previous centrifugal pump manufactured by the Byron Jackson Company?

A. It was differentiated in this way: That the previous pump manufactured by the Byron Jackson Company known as the pit pump, used a volute shell, the vertical shaft exterior to the discharge pipe, and the bored well pump is what is now known as the bowl pump or with the shells placed immediately one above the other, and the shaft that operated it extending through an enclosed tube inside of the discharge pipe, which varied according to the size of the pump.

Q. Let us see if we can get this matter a little clearer. I now show you, not for the particular purpose of any of the lettering on that drawing, but a drawing there. See if that generally illustrates the manner of the assembling of the pit pump that you have been referring to as manufactured by the Byron Jackson Company in about 1899 or 1900?

A. Yes; I think that is the general idea of it.

Q. And this pipe which is marked in the drawing

(Deposition of Frank Jackson.)

"discharge" would be the discharge pipe, illustrating in a general way what you have been referring to?

A. Yes, sir; a pit pump.

Q. And that is the type of pump the Byron Jackson Company [435] was manufacturing at the time you refer to, 1899, when you got up that invention of yours?

A. Yes, sir; prior to that.

Mr. LYON.—I will ask that the reporter have a photostatic copy made of the drawing, and that it be offered in evidence as Plaintiff's Exhibit "M," and also that a photostat copy be furnished to each side.

The MASTER.—That will show the printing.

Mr. LYON.—But we are only offering the drawing itself and the letters and the reference characters that I referred to.

Mr. BLAKESLEE.—We wish it to be shown on the record that the witness had no opportunity to examine it as to anything but its general appearance and that all he could gather would be a quick first impression, and we object to the procedure as not cross-examination, if the testimony is attempted to be based on the first impression of the witness and going to any written matter on this drawing.

Mr. LYON.—If there is any question of the witness being careless in his testimony, we will ask the witness again to look at the cut and ask him if he wishes to change his testimony.

Mr. BLAKESLEE.—We ask that the witness have an opportunity to study it.

(Deposition of Frank Jackson.)

Mr. LYON.—Let him take all the time he wants on it.

A. This would be practically the method of installation of a Byron Jackson pit pump, with the exception that this pump is not like the Byron Jackson pump.

Q. (By Mr. LYON.) In what respect is that pump as illustrated in that sketch not like it?

A. In that this pump apparently takes the suction from the bottom of the pump, while the Byron Jackson pump takes the water in at the top of the pump. [436]

Q. In other words, the pump is itself if it were a Byron Jackson pump, would have to be submerged?

A. No; Byron Jackson carried an air hole from the top of the old pump, and down into the well.

Q. And the outside pipe, is that correctly illustrated?

A. Yes, sir; that illustrates it practically.

Mr. MONTGOMERY.—I see to this if you block out this printed matter.

Mr. LYON.—I am not offering the printed matter. Upperwise the general manner of mounting the pipe is correctly illustrated?

A. Oh, yes; similar to that. Most of them do.

Q. Now, Mr. Jackson, 1902 was the Byron Jackson Company manufacturing a centrifugal pump with a center top discharge?

A. Well, we manufactured the sample pump I referred to, and were also proceeding with the manufacture of other pumps at that time.

Q. Proceeding with the manufacture of how many

(Deposition of Frank Jackson.)

other pumps of that type?

A. It is difficult for me to tell.

Q. What is your recollection?

A. Well, I should imagine that there were perhaps—I couldn't tell you—perhaps a half dozen of those pumps went through at that time.

Q. Wherein, mechanically, did they differ from the type which you have just referred to, in which the elbow came over and down and the discharge pipe was at the side?

A. They differed in this; as I have explained several times, they were superimposed, one shell above the other, taking the water at the bottom and discharging at the top, and discharging through the discharge pipe, and having an inner tube [437] and a shaft projecting through the inner tube.

Q. With such a construction as you used with the centrifugal pumps as manufactured by the Byron Jackson Company in 1899 or 1900, and having the elbow inlet on the side or eccentric discharge, this enclosed line shaft feature of lubrication, for alignment of the protecting casing, and driving shaft inside the discharge pipe, and the protecting thereby of the bearings from sand and water, could not be utilized, could they?

Mr. BLAKESLEE.—We object to that as not calling for a statement of facts, but merely argumentative and not calling for a statement of what was done, but purely speculative and a matter for argument by counsel from the evidence he may get from this witness.

Mr. LYON.—I am asking if such a type of pump

(Deposition of Frank Jackson.)

could be used for that purpose?

Mr. BLAKESLEE.—That is not cross-examination.

Mr. LYON.—The question is withdrawn.

Q. How long was it after you and Mr. Byron Jackson had talked over this enclosed line shaft feature that you say, that Mr. Byron Jackson ordered drawings made for the larger size pump?

A. I can't say just exactly how long.

Q. What is your recollection?

A. My recollection is that it might be a month or so, because we were very busy and doing a great deal of other work besides that and the drawing-room was very busy.

Q. What year was it in?

A. In 1901, to the best of my recollection.

Q. Not 1900?

A. 1900 and 1901, I can't tell you which. Probably 1900, I would say. Yes, I think it was 1900. It is hard to remember those dates just to a minute. [438]

Q. To what circumstances do you tie that to when you fix that date as 1900, or is it a mere deduction?

A. I simply arrive at that from association with other things.

Q. Have you any written memorandum or document or anything of that kind, made at that time, to which you can fix that date?

A. No; all my memorandums and things of that kind, together with my text-books and everything, were destroyed in the fire.

(Deposition of Frank Jackson.)

Q. Does that first drawing show a three-stage centrifugal pump?

A. I think it shows a three-stage and possibly a four. I won't be certain about that. It is too far back.

Q. Do you remember approximately what time of the year that drawing was made?

A. No; I couldn't say the date.

Q. What was done with the drawing after it was made?

A. They were filed in the drawing-room.

Q. Was there anything ever done with the construction of that drawing toward making one of the devices? A. Yes, sir.

Q. When? A. Patterns were made.

Q. When?

A. 1901. In the latter part of 1901, or, let me say, very early in 1902. But that drawing, I think, was made, and the initial pump was tested out somewhere in the latter part of 1900 or early in 1901.

Q. Now, as assembled in such tests, describe that to us. [439]

A. Do you mean the detail of the construction of the pump all the way through as I have already described it?

Q. I want to know what it was. Tell me what it was that was put up at that time that you are speaking of.

A. It was a pump, as I have already described it several times, with bowls, one placed above the other, with impellers in the bowls and a shaft passing through the impellers, all of them on the same

(Deposition of Frank Jackson.)

shaft and the shaft extending up to the second floor of the building and a tube surrounding the shaft, and the discharge pipe made in two sections, and at the joining of the two sections a spider consisting of the sleeve with three lugs extending from the sleeve, the ends of the spider tapped out and screws put in which were to be backed out and were backed out, to center the tube and the bearings in the center of the discharge pipe, and an intermediate bearing consisted of a sleeve exteriorly threaded and the tube extending from the upper bearing in the pump threaded internally and screwed on to these sleeves, and the spider was identical with these intermediate bearings, with the exception of the extending lugs. The tube extended up through the discharge elbow, and surrounded by a stuffing-box, the shaft extending up through and carried on a pulley frame. The discharge oil discharging into a weir or a square box with a weir in it and the pipe returned to the tank on the lower floor. The pump was partially submerged in the tank, so that it required no priming in order to start the pump. It was also provided with an oil pipe extending to the open end of this tube, and an oil cup was set on the side of the frame,—a drip or cup.

Q. I believe you said that there was an A frame. What do you mean by that?

A. We called it an A frame because it is the ordinary [440] construction of the frame. It is formed something like the letter A with bearings in between.

Q. How long was the shaft of this pump?



(Deposition of Frank Jackson.)

A. About fifteen feet, or something like that.

Q. How many sections? A. Two.

Q. What was the diameter of that shaft?

A. I don't recall now. It might have been an inch and a half or possibly two inches.

Q. Was this drawing that you speak of a working drawing to scale? A. Oh, undoubtedly.

Q. There is no question in your mind that your memory is correct in that regard?

A. As to the drawing?

Q. As to being to scale.

A. I think it was to scale. I would not be absolutely sure about that. Sometimes we made trial things and experimental things with free-hand sketches.

Q. Was this an experimental thing, this pump that you are speaking of?

Mr. BLAKESLEE.—Let him state what was done with it and then it will be a legal conclusion.

The MASTER.—It is cross-examination and he may ask him whether it was an experimental pump or not.

Mr. BLAKESLEE.—We think not, within the rulings of the cases. But that is a pure conclusion. An experiment has a well-defined status in patent law, but it is a legal status determined upon the physical conditions testified to by the witness.

The MASTER.—I think the witness can testify as a fact whether the pump that was erected was put up as an experiment [441] or whether it was a finality.

Mr. BLAKESLEE.—My argument is that that

(Deposition of Frank Jackson.)

cannot be done. He must testify what was done with it and it is then to be determined legally whether it was experimental or actually experimentally or actually used.

The MASTER.—Have you any authorities on that?

Mr. BLAKESLEE.—Yes, sir.

The MASTER.—We will suspend then until tomorrow morning. Thereupon an adjournment was had, with the understanding that the Master would proceed to San Francisco on Wednesday evening, and resume the hearing in San Francisco upon arrival there. [442]

Los Angeles, Cal., January 16, 1920.

2:00 o'clock P. M.

Pursuant to the adjournment, court reassembled.  
Present: Hon. LYNN HELM, Special Master.

FREDERICK S. LYON, Solicitor for  
Complainant.

CHARLES C. MONTGOMERY and  
RAYMOND IVES BLAKESLEE,  
Solicitors for Defendant.

FRANK JACKSON, hereto sworn and partially examined, was recalled and his cross-examination resumed.

Mr. LYON.—Let the record show that the witness has produced blue-prints off of a tracing Defendant's Exhibit "C," No. 1-C-75, Defendant's Exhibit 3, No. 3-E-22, and 1-E-72, the last one being off of the tracing Defendant's Exhibit 5.

A. These are both Defendant's Exhibit 6.

(Deposition of Frank Jackson.)

Mr. LYON.—Such prints containing a reproduction of all the dates and printed matter on such tracings and—

Q. At what time did the pump with the enclosed line shaft which you have referred to as experimental, have the lubricating pipe exterior to the discharge pipe?

A. In 1901, or, perhaps, in 1902, but I think 1901.

Q. Now, describe how that lubricating pipe was so arranged exterior to the discharge pipe.

A. It extended down parallel with the discharge pipe to the top shell of the pump, and then was connected on drilled ports to the bearings of the pump—that is, the pump proper. It had nothing to do with lubricating the enclosed shaft. That was a separate pipe, fed from the reservoir at the top of the column and fastened to the pulley frame.

Q. At what time did that pump have such lubricating pipe extending inside of the discharge pipe?  
[443]

A. At the same time.

Q. And extending to the same bearings?

A. No; going to the top of the open tube. The top of the tube was open. That is, oil was dropped in from the same reservoir.

Q. There was no stuffing-box at the top of the pump?

A. There was no stuffing-box around the shaft proper, but around the stationary tube which forms the shaft protection.

Q. Just explain a little more in detail where there was a stuffing-box in that experimental pump.

A. There was a large opening through the top of

(Deposition of Frank Jackson.)

the elbow which formed a discharge. Through that large opening the tube extended. Exterior to that was a space large enough to receive packing and a gland, to force down on to that to make it water tight, the object being to make it water tight so that the discharge water would not run out to the edge of the tube.

Q. What was the object, so far as you know, of this drain which is shown upon this exhibit 5 and marked "1½-inch drain"?

A. The idea was that when the pump began to operate the water would be drained below that point in the well and that the water would drain out of the tube in either direction so that the tube would be practically clear as far as water is concerned and that the oil would follow on down.

Q. Drain out of this same drain?

A. Yes, sir.

Q. Was that, so far as you recollect, the construction embodied in the first pump for the Pabst Brewing Company?     A. Yes.

Q. That first pump for the Pabst Brewing Company, so far as you know, was never set up and fully assembled with the [444] drive shaft and so forth all in position, before the pump was shipped to Wisconsin, was it?     A. No, sir.

Q. You never saw it before it was assembled then, did you?     A. No, sir.

Q. The same is true with regard to what you recollect as to the Waterloo pump?     A. Yes.

Q. Do you remember any other pump of 1903, 1904 or 1902, which used this enclosed line shaft

(Deposition of Frank Jackson.)

feature which you saw fully assembled, other than this experimental pump you have referred to?

A. Yes; there were two shipped to Elgin, Illinois.

Q. Do you remember for whom they were made?

A. No, sir.

Q. Do you remember the size of the pump?

A. They were a smaller size. I think they went into 12-inch wells.

Q. You don't remember when those were built?

A. I think in 1905.

Q. Did you see those fully assembled?

A. No, sir.

Q. That was my original question. Have you ever seen any of these assembled with the enclosed line shaft, except as you say, this experimental pump?

A. No. Yes, I have seen them. I will correct that. Because in 1908—

Q. We don't care anything about 1908. I was limiting the question to 1902, 1903 or 1904.

A. No.

Mr. LYON.—In connection with the cross-examination of [445] this witness, we offer in evidence as part of such cross-examination the affidavit of this witness made in this case and dated December 17, 1919, verified before Charles G. Montgomery, Notary Public, in and for Los Angeles County, State of California, together with the exhibit blueprint thereto attached.

Q. Mr. Jackson, who was connected with the Byron Jackson Machine Works as the shop foreman at the time this first experimental pump that

(Deposition of Frank Jackson.)

you have referred to was made?

Mr. BLAKESLEE.—We object again to qualifying of this first pump with the word “experimental” as being a sweeping definition which is improper, and being an arbitrary interpretation of the testimony, and being unnecessary to be used. The word “experimental” need not be used to define that pump.

The MASTER.—The objection is overruled. The witness has called it that and understands what he is talking about.

Mr. LYON.—He said it was only used for making certain tests of the lift of water and used experimentally in that sense, but not as a complete device.

The MASTER.—The objection is overruled.

Mr. BLAKESLEE.—Exception.

(Question is read.)

A. I was superintendent of most of that myself.

Q. Shop foreman?

A. I acted both as foreman and superintendent.

Q. Do you remember any of the other men who had anything to do with the building of that pump or were connected in any important position with the company at that time?

A. It is pretty hard for me to remember names. Those that I remember, would be probably at a later date.

Q. That is exactly what I want to ascertain.

A. There was a Mr. Edward Lyman who was working for us at that time, but what became of him I don't know. I have [446] not seen him for eighteen or nineteen years.

(Deposition of Frank Jackson.)

Q. Do you remember anyone else?

A. Do you refer to them as machinists or draughtsmen?

Q. In any position you can remember.

A. Mr. Howard Thomas, in 1900, was a draughtsman or assistant draughtsman. Mr. Vandergrift was draughtsman and designer. Mr. Byron Jackson acted himself as consulting engineer and also helped in designing and figuring.

Q. Let us confine it to whom you recollect in 1900.

A. Those parties that I have already referred to.

Q. No one else?

A. I think H. C. Robb was working for us at that time, but I don't think he worked on that pump.

Q. 1901?

A. Mr. Thomas was there, and Mr. Vandergrift was still there, and I am pretty sure Edward Thompson was.

Q. How long did Mr. Vandergrift remain with the company?

A. I can't say. I think perhaps two years, but I cannot recall.

Q. You mean his total connection with the company was two years?

A. I would not be positive about that date. It might have been two years or more, or possibly less.

Q. Do you remember when he first started to work for the company?

(Deposition of Frank Jackson.)

A. I think he began in 1899 or perhaps a little later than that.

Q. In 1902 who do you remember was there at work, connected with the Byron Jackson Machine Works?

A. Mr. Vandergrift and Mr. Thomas were both there, and also Mr. Forward. [447]

Q. Anyone else you can remember?

A. Mr. Robb was working there at that time, and Edward Thompson was working there at that time.

Q. Anyone else?

A. Mr. Ralph Gibson was working there as a teamster. That is all I can recall.

Q. Do you know a man by the name of George W. Cuthbertson? A. Yes, sir.

Q. When was it that he was connected with the Byron Jackson Machine Works?

A. Possibly he was working along there about that time.

Q. What do you mean by "About that time"?

A. Along, perhaps, 1901, '02 or '03. I can't remember definitely. We changed foreman several times. He acted as foreman for a while.

Q. You mean as shop foreman? A. Yes, sir.

Q. When was it that Mr. George W. Cuthbertson acted as shop foreman for the Byron Jackson Machine Works?

A. I would put that somewhere about 1902. I don't know exactly.

Q. For how long?

A. He was not foreman very long. I think perhaps several months, I would say.



(Deposition of Frank Jackson.)

Q. Who succeeded him? What is your best recollection as to when Mr. Cuthbertson first went to work for the Byron Jackson Machine Works?

A. It was possibly in 1900 or 1901. I am not positive about that at all.

Q. Do you state positively that George W. Cuthbertson [448] was not shop foreman at the time this first experimental pump you referred to was built? Answer the question yes or no, and then make such explanation as you desire.

A. He might possibly have been in the shop and might have been foreman for some part of the Iron working departments.

Q. What is your best recollection? Was he or was he not present and foreman of some part of the shop at that time?

A. I could not settle that date. It is out of my mind.

Q. Do you know a man by the name of Palsmaier? A. Yes, sir.

Q. Was he connected with the Byron Jackson Machine Works in 1900?

A. I know Mr. Palsmaier, but I don't know whether he came in 1900 or '01 or '02.

Q. What is your best recollection?

A. I think Mr. Palsmaier came there in 1902. He came there as salesman.

Q. So far as your recollection is concerned, does it enable you to state whether or not Mr. Palsmaier had anything to do with this Pabst Brewing Company sale of pumps?

A. No; I know nothing about the selling of

(Deposition of Frank Jackson.)

pumps, because that was entirely out of my province.

Q. Or anything to do with the construction, or about the shop during that time?

A. No more than an engineer would come into the office.

Q. Mr. Palsmaier was one of the engineers?

A. He was a selling engineer.

Q. What time are you referring to?

A. I think it was about 1901 or '02, or somewhere along there.

Q. I wish you would tell me how the bearings in the shaft [449] —the driving shaft of the first Pabst Brewing Company pump was built? Was it a babbitted bearing? A. Yes, sir.

Q. Explain how and what you mean by babbitted bearings?

A. The bearing was made like a sleeve or cylinder cast in a larger diameter than the shaft.

Q. Babbitted?

A. Babbitted. This bearing was threaded on the outside to receive the tubes which were threaded on the inside. Also, at each section or coupling of the pipe there was a bearing like this, with the exception that there extended three lugs within about an inch of the outer casing, and these were tapped to receive screws. These screws were intended to be backed out to the center of the tube, and the bearing in the center of the discharge pipe.

Q. What was the purpose of babbitting those bearings?

A. So that they might be renewed if necessary, and, furthermore, it was common construction at

(Deposition of Frank Jackson.)

that time. We were using Babbitt as the best material that we could use.

Q. Were those babblings put inside of another bearing which had an inside machine finished surface?

A. Some were made that way and some were babbed into the casings, direct. I don't recollect whether these were that way or whether there was a machine finish.

Q. How did you manage to hold them in the—

A. They were held in by screws. If the surface was not rough, you would have to provide a mechanical device to hold it in place.

Q. Was this first pump for the Pabst Company, were they braced anyway?

A. I am not clear. [450]

Q. Are you sure you used a babbed bearing in that pump and line shaft or what was it?

A. It was the first babbed bearing that I made.

Mr. LYON.—You may take the witness.

Redirect Examination.

(By Mr. BLAKESLEE.)

Q. Now, again, when was it that you severed your connection with the Byron Jackson Machine Works? A. 1909.

Q. At that time were any of the employees of the Works whose names you have mentioned in your cross-examination, connected with the Byron Jackson Machine Works or Iron Works?

A. Mr. Palsmaier and Mr. Walter Forward. But Mr. Thomas was not connected with it at that time.

(Deposition of Frank Jackson.)

Q. Were any of the working men in the shop in the years 1900, '01, '02 and '03, still with the Byron Jackson Iron Works when you left there?

A. I do not recall and I would not know, for this reason: for over a year before I left there I know I was out on other work instead of construction work.

Q. In 1908, were any of the working men still there?

A. With the exception of Mr. Palsmaier, I cannot recall any other. I was entirely outside then. I was building dredgers.

Q. Was Cuthbertson there? A. No, sir.

Q. You have not heard of his whereabouts since?

A. No, sir.

Q. Do you know the whereabouts of any of the working men of the Byron Jackson Machine Works who were there in 1900, '01, '02 or '03?

A. Mr. Robb.

Q. Anyone else? [451] A. At present?

Q. Anybody else? A. No.

Q. Do you know whether or not the Byron Jackson Works kept a book of employees during the years 1900, '01, '02 and '03, giving their addresses and means of locating them?

Mr. LYON.—Objected to as leading and suggestive. The witness has not laid any foundation to qualify him.

Mr. BLAKESLEE.—He was superintendent and asked if he knew.

A. They undoubtedly kept books.

Q. (By the MASTER.) What did you know?

(Deposition of Frank Jackson.)

A. So far as I know it was destroyed in the fire. They kept a book called a payroll.

Mr. LYON.—We object to the last statement on the ground that it is hearsay and the conclusion of the witness and incompetent.

The MASTER.—The objection is sustained.

Q. (By Mr. MONTGOMERY.) When did you last see such payroll book?

A. I would not remember having seen the payroll book, for I had nothing to do with the payroll book.

Q. (By Mr. BLAKESLEE.) Was that payroll book kept at the plant and works of the Byron Jackson Machine Works?

Mr. LYON.—Objected to as immaterial. The witness has shown that he does not know anything about it in particular.

Mr. BLAKESLEE.—He says after the year 1903 he did not use it. How about 1903? What is your knowledge about that payroll book?

A. I would see it occasionally, or perhaps, once in awhile they came to me and inquired about somebody's wages. It was kept at the works. [452]

Q. Do you remember of any record book or papers of the Byron Jackson Machine Works kept at those Works which remained after the fire of 1906, other than the tracings you have told us about this morning?

Mr. LYON.—We object to that on the ground that unless it is limited solely as to whether this man knows anything about it. Other than the tracings and the orders that were then in hand.

A. The order file, I think was preserved and

(Deposition of Frank Jackson.)

turned over to the office which they opened for a temporary office.

Q. You mean the orders of 1906? A. Yes, sir.

Q. Which were then going through the shop?

A. Yes, sir.

Q. Are you able to give us any particular statement as to the year Mr. Palsmaier connected himself with the Byron Jackson Machine Works?

A. None other than I have testified.

Q. Did he handle the Pabst pump matters?

A. No; that was handled through my department.

Q. Do you know of your own knowledge anything that he had to do with those pumps at any time?

A. Not of my own knowledge.

Q. Do you know anything of your own knowledge that he had to do with the 1901 pump you have told us about, namely, the one installed in the hotel?

A. I cannot recall.

Q. Do you know of anything that he had to do with the pump which was tested out as to its lift of water, etc., which has been referred to as the experimental pump?

A. Other than possibly he might have gone over the figures [453] with Mr. Jackson, but I didn't see them.

Q. Do you know whether he did or not?

A. I don't know. He may have taken the data there. You never could tell when we were testing. There might have been several standing around.

Q. Do you know of your own knowledge whether he was connected with the shop in 1902?

A. I am reasonably certain that he was.

(Deposition of Frank Jackson.)

Q. Do you remember what part of the year?

A. I couldn't state.

Q. You don't know the part of the year?

The MASTER.—He said he did not know.

Q. (By Mr. BLAKESLEE.) In what condition were the Pabst pumps shipped to Milwaukee? I mean those after the first shipment to the Pabst Brewing Company?

A. The second order for Pabst pumps were made with a pump discharge casing, except for flanges, and I am reasonably certain those were shipped out of the shop, but I am not positive as to whether there was a tube shipped or not, or as to whether the shaft was shipped or not. I am not positive.

Q. As to which of the pumps subsequent to the first do you think the tube and shaft parts were shipped to Milwaukee?

A. It must be the second order.

Q. How about the third, fourth and fifth?

Mr. LYON.—Objected to as assuming a fact not testified to by the witness, that there was a third, fourth and fifth.

Mr. BLAKESLEE.—Counsel brought it out himself in cross-examination. He asked him if he did not understand that there were five Pabst pumps?

Mr. LYON.—Not five shipments or five orders. I asked him if there were five pumps. [454]

The MASTER.—They may have been all under one order.

Q. (By Mr. BLAKESLEE.) How about any of the pumps that were shipped after the first?

A. That is, as to when they had the casing tube?

(Deposition of Frank Jackson.)

Q. Yes, and the shafting.

A. I am reasonably certain that those were shipped, complete.

Q. Do you know of your own knowledge whether any testing was done at the shop of the Byron Jackson Machine Works, with respect to any of those pumps shipped to the Pabst people, subsequent to the first pump shipment to them?

A. Yes, sir.

Q. Can you tell us about any such testings?

A. The first Pabst pump was tested at the shop, but it was not set up vertically as the first deep tube pump was made, but was laid on its side and a pulley put on the shaft and the bearings bolted up and the elbow turned down from the end of the pump into the tank and the discharge taken out, and by means of an elbow, discharged back into the tank, the object being to determine whether the pump produced the pumping head and lift as to the quantity of water.

Q. What can you say in these respects as to the pumps shipped to the Pabst people—that is, with regard to any testing?

A. No testing, because we simply had the data necessary on the first one.

Q. Do you know what became of the pump which you said was installed in the hotel in San Francisco, in 1901, like the tracing Defendant's Exhibit 2?

A. You have to show me that. That part of the town was all burned up and the probabilities are that went into the junk pile, because everything was destroyed. [455]



(Deposition of Frank Jackson.)

Q. That hotel was destroyed?      A. Yes, sir.

Q. Do you remember the name of the hotel?

A. I do not, because it was more like an apartment house than a hotel.

Q. Can you recollect the names of anyone who worked on that hotel pump in 1901 during its construction?

A. I don't know whether I could name individuals who worked on it or not, because we had a shop full of men. There were seventy-five machinists there.

Q. Were any of those men in the employ of the Byron Jackson Iron Works to your knowledge in 1908?      A. I don't know.

Q. Do you remember any that were?

A. I know of one who probably was working there at that time, but he had nothing to do with that. He would be working there now if they were not on strike.

Q. Was this man you refer to killed there?

A. There was one man killed there. There was a man named Core that was proprietor of the shop.

Q. I notice among these tracings in Defendant's Exhibit 2 to 6, inclusive, to which you have referred to and identified, certain lettering such as on Defendant's Exhibit 4, "700 G. P. M." Do you know what that indicated?

A. G. P. M. suggests gallons per minute. That is a short way of abbreviating it.

Q. And on the same exhibit I see "1500 R. P. M."

A. That means revolutions per minute.

Q. Of what?      A. Of the rotating shaft.

(Deposition of Frank Jackson.)

Q. Where it says "200 feet A. L. T. D." [456]

A. The total pumping head of the pump.

Q. The height to which it would carry the water?

A. Yes, sir.

Mr. BLAKESLEE.—That is all, excepting the recall that may be necessary and which was reserved this morning for the purpose of introducing the sketch.

Cross-examination.

(By Mr. LYON.)

Q. You referred to a test of the first pump for the Pabst Brewing Company. According to your best recollection, when was that test made in the Byron Jackson Machine Works?

A. Early in 1903. I cannot tell you just the month.

Q. When you say "early" what do you mean?

A. It might have been in January, February or March.

Q. Are you sure it was not as late as June, 1903?

A. I don't think so.

Q. Now, these various tracings, some of which you have identified here to-day, were made for the making of the pump?

A. They were made in 1903, and I am reasonably certain that pump was made in 1903. It might have been in the middle of the year. I cannot recall that.

Q. In other words, what is your recollection regarding the tracings which will show the construction of that pump, which you have identified here

(Deposition of Frank Jackson.)

to-day, were they before or after the pump was made?

A. They were made before the pump was made.

Q. According to your recollection, there was this one pump shipped to Wisconsin and you understood it was for the Pabst Brewing Company?

A. Yes, sir.

Q. The next shipment, was there one pump or more than one? [457]

A. I think they were shipped as we completed them. I am not certain that we shipped them altogether.

Q. According to your best recollection, when did the second pump go out?

A. Some time in 1904; perhaps about the middle of 1904.

Q. You are reasoning that out, and that is your best recollection? A. Yes, sir.

Q. You have nothing particular to tie that circumstance to?

A. Other than this; that it was when Robb came back the first part of 1904 and we began the construction of those pumps.

Q. Of the second pump? A. Yes, sir.

Q. Did you make more than one pump for them at that time, or were there subsequent orders given for others?

A. We started in on three at that time. He brought back three orders.

Q. For three pumps? A. Yes, sir.

Q. You started in on three? A. Yes, sir.

Q. That was some time in 1904?

(Deposition of Frank Jackson.)

A. Yes, sir; to the best of my recollection.

Q. Did you finish three pumps during 1904, for the Pabst Brewing Company?

A. I am not positive about that.

Q. Are you sure that those orders called for or that you built three or two or one pump for the Pabst Brewing Company in 1904 with this enclosed line shaft feature, during the year 1904? [458]

A. I would say they were, to the best of my recollection.

Q. Are you sure that those orders that Robb brought back contained the enclosed line shaft?

A. Yes, sir; to the best of my knowledge the orders called for them.

Q. Is that the last order you had for the Pabst Brewing Company? A. I don't know.

Q. What is your recollection?

A. During my time with them—during the time I have in mind, there were five made, and I think in the first instance there was one made, then three made and then perhaps one after that.

Q. Then according to your present recollection, when was this fifth one made?

A. I could not attempt to locate that.

Q. Was it made during the year 1906?

A. No; it was prior to that, I think.

Q. Was it made in 1905?

A. Possibly in 1905, to the best of my recollection.

Q. Did you know where that pump was to go?

A. I never paid any attention to the shipping

(Deposition of Frank Jackson.)

after the pumps were created. I would not know where they went.

Q. How do you know that that was the pump for the Pabst Brewing Company?

A. Just from the order.

Q. Just the shop order? A. Yes, sir.

Q. Did you ever receive any information whatever yourself as to what happened to the first Pabst installation after it was put up? [459]

A. The only information I ever got from that was from Mr. Robb, that they had some objection to the oil going into the water.

Mr. BLAKESLEE.—We ask that that answer be stricken out on the ground that it is not a statement of facts and not a statement of knowledge. The question itself calls for the reception of information.

The MASTER.—Sustained.

Mr. LYON.—That is all. [460]

**Deposition of H. C. Robb, for Defendants.**

H. C. ROBB, a witness produced on behalf of defendant, being first duly sworn, testified as follows:

**Direct Examination.**

(By Mr. BLAKESLEE.)

Q. State your name, age, residence and occupation, Mr. Robb.

A. My residence is 706 North Figueroa Street, Los Angeles; age fifty-six; occupation, machinist.

Q. Were you at any time employed by the Byron Jackson Machine Works in San Francisco, California? A. Yes, sir.

(Deposition of H. C. Robb.)

Q. When?

A. From the late eighties till ten or twelve years ago. About eighteen years.

Q. From about 1908?

Mr. LYON.—Objected to as leading.

Q. (By Mr. BLAKESLEE.) What year did you leave there?

Q. (By the MASTER.) What year did you go to work for them? A. 1908.

Q. (By Mr. BLAKESLEE.) During that time in your connection with those people, what services did you perform for them?

A. Both inside and outside work, installing outside and erecting.

Q. What kind of things did you install for them?

A. All classes of pumps, engines—gas engines and steam engines.

Q. What kind of pumps?

A. Centrifugal and bored well pumps, both horizontal and vertical.

Q. Did you ever install any bored well pumps for them outside of California? [461]

A. Yes, sir.

Q. Where? A. In Milwaukee.

Q. When was that? A. 1903 or '04.

Q. Where in Milwaukee?

A. The Pabst Brewing Company.

Q. That is, in Milwaukee, Wisconsin?

A. Yes, sir.

Q. When did you go there to install that pump? What part of that year?

(Deposition of H. C. Robb.)

A. In the latter part of October I left San Francisco.

Q. Of what year? A. 1903.

Q. To your knowledge where was that pump before you installed it? Where did it come from?

A. The pump itself and the top work and the bearings were all made in San Francisco, and the tube, shafting and outside casings were made in Milwaukee.

Q. What do you mean, by this connection, by the outside casing?

A. The pipe that is called the column.

Q. Did you install that pump in Milwaukee?

A. Yes, sir.

Q. How was that tubing or column installed? How was it arranged and what did it do?

A. You mean the process of installation?

Q. No. When it was installed, what did it do? What was its purpose?

A. To deliver the water from the pump to the surface.

Q. What other parts can you remember of that pump as you installed it in Milwaukee? [462]

A. The shaft and the tubing containing the shaft, the bearings, the top works.

Q. Where were the bearings located?

A. Attached to the inner tube.

Q. And what was it that turned in those bearings?

A. The shafting delivering the power to the pump.

(Deposition of H. C. Robb.)

Q. Where did that shafting come from, if you know?

A. I bought the shafting in Chicago and shipped it to Milwaukee.

Q. Where did the tubing surrounding the shafting come from?

A. It came from Chicago. I bought it from different companies and shipped it to Milwaukee.

Q. Where did the bearings come from?

A. San Francisco.

Q. Under whose instructions did you proceed to Milwaukee?

A. My own, following the drawings supplied by the Byron Jackson Iron Works.

Q. Who furnished you with drawings for the Byron Jackson Iron Works?

A. The Byron Jackson Iron Works.

Q. Who of that company furnished you with those drawings?

A. Byron Jackson himself.

Q. And did you take those drawings with you to Milwaukee? A. Yes, sir.

Q. Do you know where those drawings are to-day?

A. They were returned back to the factory when I came back from Milwaukee.

Q. Please give us a brief description of the drawings you took to Milwaukee under your instructions to install this Pabst pump. [463]

A. They showed the tubing and shafting and bearings, and what to order for them and how they were to be arranged, with the threads and how the ends were to go on the shaft, the same as working



(Deposition of H. C. Robb.)

drawings to be supplied to any mechanic to do the work.

Q. How many lengths were there to the shaft?

A. Twenty feet.

Q. How many of those lengths? A. Ten.

Q. Do you remember the depth of the shaft?

A. The well itself was two thousand feet. The pump was set two hundred feet from the surface.

Q. What was the diameter of that well?

A. Fifteen inches.

Q. Do you remember the diameter of the tubing that enclosed the shaft? A. Four inches.

Q. Do you remember the kind of bearings that were used within the tube and within which the shafting turned?

A. They were cast iron, lined with Babbitt. The thread was turned on the cast iron and the thread was inside of the tube.

Q. And how were the lengths of tubing connected?

A. Screwed, ten feet apart with one bearing in between. The main pipe was twenty feet and the tubing was made in two sections of ten feet each.

Q. Do you remember anything else that was installed in connection with the casing and the tubing and the shaft and bearings?

A. If you want the details there was an oil hole drilled through the bearings to admit oil from one bearing to the other, [464] if a bearing choked up with oil.

Q. Do you remember any other parts of that pump or that installation?

(Deposition of H. C. Robb.)

A. There were spiders that carried screws to center it in the column.

Q. Where were those spiders placed?

A. At the top of each section.

Q. How were they held in place?

A. By the tube, vertically and by the setscrews centrally.

Q. What did the setscrews bear against?

A. Inside of the main column.

Q. That was the pump casing?

A. Yes, sir.

Q. What was the purpose of providing those setscrews there?

A. To bring the shaft in the center of the column.

Q. And to align it?      A. Yes, sir.

Q. Under whose instructions did you purchase the shafting and inner tubing in the east?

A. Mr. Byron's Jackson's instructions.

Q. When you were making this installation for which you went to Milwaukee in October, 1903, whom did you meet at the plant of the Pabst Brewing Company at Milwaukee?

A. I met the president of the company and the superintendent, but I don't remember their names.

Q. Anybody else?

A. The men at the shop where I did the work on the material.

Q. Was that a Pabst Company repair shop or an outside shop? [465]

A. The name of that shop was the Andrew Kopperrood. I don't know how to spell it.

(Deposition of H. C. Robb.)

Q. And what work did you do in that Kopper-rood shop?

A. I threaded the shafting and the tubing and the outside casing. I assembled the pump on the sidewalk and dismantled it and transported it to the Pabst plant and installed it.

Q. And where did you put the ten lengths of shafting together? A. In the well.

Q. How were they connected together?

A. With left-hand thread screw nuts.

Q. In connection with making that installation at Milwaukee, did you consult or confer with anybody else there? A. Absolutely not.

Q. Do you remember who was in charge of the part of the Pabst works where you put this pump in?

A. I would recognize the name if I heard it, but I can't recall the name now.

Q. How long did it take you to complete that installation?

A. About sixty days. There was considerable delay in getting the 9-inch casing. What I had on hand, I finished long before we got the casing.

Q. Had that well been drilled prior to your leaving and finishing?

A. Yes, sir; and used by compressed air.

Q. How high did the water stand in that well?

A. One hundred feet, with the pump standing. It went to two hundred feet with the pump running.

Q. Please tell us what you did after you got the parts of the pump installed and in position in the well.

(Deposition of H. C. Robb.)

A. I put the belt on the engine and saw that the oiling [466] device was in order and started up, delivering the water on the street for a period of several days before it was used in the plant.

Q. What was the delivery arrangement of the water from that well casing?

A. It went into the horizontal line and was carried a block or a block and a half to their reservoir.

Q. Do you remember what the revolutions per minute that pump made?

A. Practically twelve hundred.

Q. How about the gallons per minute discharged?

A. Seven hundred gallons.

Q. And what head? A. Two hundred feet.

Q. Now, after you had tried it out that way, pumping the water out into the street, what took place?

A. The pumping was connected with the reservoir and they commenced to use it for the purpose of purifying the kegs, as with steam.

Q. They used the water for purifying tanks?

A. No; the kegs. The well water was not used for making beer. They used the lake water. One was used for cleaning the kegs and the other was used for manufacturing beer.

Q. Was that pump operated right along after you connected it up with the reservoir, till you left there?

Mr. LYON.—Objected to as leading and suggestive.

Q. (By Mr. BLAKESLEE.) Strike it out.

(Deposition of H. C. Robb.)

What have you to say as to the continuity of operations after it was started up and connected with the reservoir?

A. We ran it for sixty days or more. It was over sixty and less than ninety days, and then I left.  
[467]

Q. What period of time per day was the pump operated? A. Twenty-four hours.

Q. How much of that time were you in the observation of the operation of the pump?

A. Three or four hours every day.

Q. Each of those days during the sixty or ninety days? A. Yes, sir.

Q. Were there or were there not any troubles encountered in the operation for that period?

A. Only with the oiling device.

Q. What was that oiling device for? What did it lubricate? A. The bearings.

Q. Where were they?

A. Ten feet apart on the column.

Q. What trouble did you have with that?

A. The oil was found to be detrimental to the cleaning of the kegs and we stopped using the oil and used city water to lubricate the bearings.

Q. Where was that oil put in when you used it?

A. At the top inside of the 4-inch tubing.

Q. That is, the shaft enclosing the tube?

A. Yes, sir.

Q. To conduct it to that place from what source?

A. From the oil container at the top. With small piping.

Q. How long was it run with that oil lubrication

(Deposition of H. C. Robb.)

before they stopped that lubrication?

A. Between two and three weeks, as near as I can remember.

Q. Did you note any change in the efficiency of its operation after the oil lubrication was terminated?

A. The question of efficiency was not raised. There [468] was no occasion to note whether it made any difference in power or not.

Q. The water that you used for lubricating purposes, came from another source?

A. Yes, sir; it came from the city. I insisted on its being strained through a settling tank which we made, to be sure that it was clear water.

Q. Was there any packing provided in that pump for the shaftings?

Mr. LYON.—Objected to as leading and suggestive.

Q. (By Mr. BLAKESLEE.) To your knowledge?

The MASTER.—Answer the question.

A. There was a packing gland at the pump.

Q. At which end?

A. The top of the pump.

Q. And what did that pack? A. The shaft.

Q. Where was the stuffing-box mounted?

A. At the top of the pump casting. It was packed below the shaft line proper. It would be the first shafting on the pump.

Q. Any other packing or stuffing-box used on the pump? A. On the top.

Q. Where was that placed?

(Deposition of H. C. Robb.)

A. Around the 4-inch casing to keep the water in.

Q. To keep the water in where?

A. In the pump column.

Q. And that confined it to the discharge, through a horizontal pipe?

Mr. LYON.—Objected to as leading and suggestive.

The MASTER.—Sustained. [469]

Q. (By Mr. BLAKESLEE.) How did that confine the water—that last packing at the top?

A. It was packed around the 4-inch casing to prevent the water from going from the outside line into the atmosphere.

Q. While you were back in Milwaukee on this trip that you have told about, did you communicate with the home works of the Byron Jackson Machine Works at San Francisco? A. Yes, sir.

Q. What communication did you have with them?

Mr. LYON.—We object to that.

Q. (By the MASTER.) Was it a letter or telegram or what?

A. Both by mail and tēlegraph.

Q. (By Mr. BLAKESLEE.) Do you remember when it was that you communicated with them?

A. Not to be sure of the date. One was when we got the pump accepted.

Q. And when was that? A. Early in 1904.

Q. What was that, a letter or telegram?

A. Both.

Q. Do you know where that letter and telegram are to-day? A. No.

Q. Can you state the substance of them?

(Deposition of H. C. Robb.)

Mr. LYON.—Objected to as incompetent and not the best evidence and no foundation laid for the introduction of secondary evidence.

Q. (By Mr. BLAKESLEE.) Do you know where any of those communications are that you mentioned—letters or telegrams?

A. Unless they would be in the records of the telegraph company or in the Byron Jackson office.

Q. Have you ever seen them since? [470]

A. No.

Q. Now, can you state what was contained in those communications?

Mr. LYON.—We object to it on the ground that it is incompetent and no foundation laid, secondary and no effort has been shown as made to produce them.

Mr. BLAKESLEE.—We have shown that the papers of the company and the works were destroyed. It seems to me there could not be any better foundation laid. Mr. Keating has no record, and Mr. Jackson says there are none, and Mr. Thomas and Mr. Forward could not produce anything besides these tracings. We have laboriously laid the foundation as to the records of the Byron Jackson Machine Works.

Mr. LYON.—Mr. Keating says it would take from thirty to sixty days to make a search to find the records. There is nothing to show that you made even a request for these particular communications.

Mr. BLAKESLEE.—We have requested them to produce everything that they can produce.

The MASTER.—Maybe the witness has copies.



